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The relationship between alienation appraisals and trauma

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The relationship between alienation appraisals and trauma

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A meta-analytic review of the relationship between alienation appraisals and PTSD symptoms in trauma-exposed adults

Abstract

Ehlers and Clark's cognitive model of Post-Traumatic Stress Disorder (PTSD) highlights the importance of negative appraisals in maintaining post-traumatic stress. Recent research suggests that alienation appraisals, defined as feeling disconnected from the self and others, mediate the relationship between traumatic events and subsequent PTSD symptoms. No systematic review has been conducted which explores the relationship between alienation appraisals and PTSD symptoms in trauma-exposed adults, despite the important clinical implications posed by this relationship. A systematic search of SCOPUS, Web of Science, PsycInfo, MEDLINE, CINAHL Plus and PILOTS databases found 463 studies, 9 of which met full inclusion criteria. Studies were quality assessed for risk of bias using the QATSDD quality assessment tool. A random effects meta-analysis for the relationship between alienation appraisals and PTSD symptoms showed a total effect size of $r = .57$, with 95% confidence intervals between .46 and .66 ($Z = 8.41$, $p < .001$). The effect size was large, suggesting that as alienation appraisals increase, PTSD symptoms increase. Although a strong, positive relationship was found between alienation and PTSD symptoms, the mechanism of this relationship remains unclear. Limitations of the research included significant heterogeneity across studies and the fact that data is correlational. Future research to explore why alienation appraisals are significant in post-traumatic stress may further help to inform therapeutic approaches to target alienation appraisals in trauma survivors. This

review recommends the clinical assessment of alienation appraisals, when exploring the impact of the traumatic experience on the survivor.

A meta-analytic review of the relationship between alienation appraisals and PTSD symptoms in adults who have witnessed or experienced traumatic events

Exposure to traumatic events is common; however, most people who witness or experience traumatic events do not develop Post-Traumatic Stress Disorder (PTSD) (Schnurr, Friedman, & Bernardy, 2002). Using DSM-5 criteria, a large-scale survey of 2953 adults in the US found that 89.7% of the sample were exposed to a traumatic event (Kilpatrick et al., 2013). Despite the high frequency of trauma exposure, only 8.3% of the sample met the diagnostic criteria for PTSD (Kilpatrick et al., 2013). Researchers and clinicians alike have developed theoretical models to enhance our understanding of why some people exposed to trauma recover, whilst others develop PTSD. One of the most prominent theories is Ehlers and Clark's (2000) cognitive model of PTSD which highlights the importance of cognitive appraisals for individuals who have experienced or witnessed traumatic events. Evidence suggests that negative cognitions about the self, others and the world are crucial in post-traumatic stress, this led to the development of the Post-Traumatic Cognitions Inventory (PTCI) which is useful in identifying key negative cognitions which may maintain PTSD in trauma survivors (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Where much research related to the cognitive model has focused on negative appraisals broadly (Foa et al., 1999; Keshet, Foa, & Gilboa-Schechtman, 2018) a growing body of work suggests that looking at specific appraisals in relation to PTSD symptoms has potential value for both theory development and clinical

interventions, including alienation appraisals (DePrince, Huntjens, & Dorahy, 2015). To date, no systematic review has assessed the relationship between alienation appraisals and PTSD symptoms in trauma-exposed adults, despite important research and clinical implications. This systematic review focuses on alienation and PTSD symptoms.

Negative Trauma Appraisals

Ehlers and Clark's (2000) seminal cognitive model posits that past experiences of trauma and the characteristics of the traumatic event influence how a person appraises their trauma (Ehlers & Clark, 2000). The model proposes that individuals who meet the diagnostic criteria for PTSD, in comparison to trauma-exposed individuals who recover, are more likely to make negative appraisals about the traumatic event and its aftermath (Ehlers & Clark, 2000). Trauma appraisals, which have been defined as "people's assessments of their thoughts, feelings and behaviours" about the trauma, (Deprince, Zurbriggen, Chu, & Smart, 2010) can contribute to a sense of current threat and symptoms of PTSD (Ehlers & Clark, 2000). For example, common symptoms shortly after experiencing trauma include bodily symptoms of the fight/flight/freeze response, if a person appraises this normal response as indicating that they are permanently damaged after the trauma, this maintains an active sense of threat (Ehlers & Clark, 2000).

Ehlers and Clark's cognitive model has been well supported in trauma research as illustrated by a recent meta-analysis, which revealed a large effect size (r = .58) for the relationship between negative appraisals of trauma and PTSD symptoms in trauma-exposed children and adolescents (Mitchell, Brennan, Curran, Hanna, & Dyer, 2017). Recent research using a student sample has shown that the

relationship between childhood abuse and PTSD symptoms is mediated by trauma appraisals (Barlow, Goldsmith Turow, & Gerhart, 2017). Prospective studies have also shown that negative appraisals maintain PTSD symptoms in trauma-exposed adults (Halligan, Michael, Clark, & Ehlers, 2003). The theory that negative appraisals maintain trauma-related distress was further supported by a longitudinal study, which found that negative trauma appraisals mediated the relationship between PTSD symptoms in young survivors immediately after a car accident and at 6-month follow-up (Meiser-Stedman, Dalgleish, Glucksman, Yule, & Smith, 2009). Studies of trauma-exposed adults have found that individuals who met the diagnostic criteria for PTSD reported more negative trauma appraisals than individuals who did not meet the clinical threshold for PTSD symptoms (Zuj et al., 2017).

Alienation Appraisals

Building on the literature that looks broadly at negative appraisals, other work has pointed to the value in examining specific appraisals in relation to posttraumatic symptoms for theory and intervention development. For example, early in the traumatic stress studies literature, Roth and Newman (1991) used interviews to identify a range of appraisals common to women who had been sexually assaulted (Roth & Newman, 1991). Later work extended the field's focus on fear, helplessness, and horror to consider the role that shame and anger (Andrews, Brewin, Rose, & Kirk, 2000) as well as self-blame (Breitenbecher, 2006) among other appraisals have in relation to PTSD symptoms. Building on Roth and Newman's approach, DePrince and colleagues identified six common appraisals (fear, anger, shame, self-blame, betrayal, alienation) among adults exposed to different forms of trauma (DePrince et al., 2010).

Several studies highlight the importance of considering alienation in post-traumatic stress, in terms of both research and clinical implications. Alienation has been defined as feeling disconnected from yourself and others (DePrince, Chu, & Pineda, 2011). Cross-sectional research demonstrated that appraisals following a trauma fully mediated the relationship between traumatic events in childhood and adulthood and current symptoms of PTSD and depression in a sample of trauma-exposed treatment-seeking adults (Mitchell et al., 2018); however, appraisals of alienation were the only significant mediator of this relationship when all appraisal subtypes (fear, anger, shame, self-blame and betrayal) were considered concurrently (Mitchell et al., 2018).

The relevance of alienation to post-traumatic stress has been documented in multiple samples of individuals who have been exposed to diverse traumatic experiences. Evidence suggests that trauma survivors who report highly on alienation appraisals have less favourable treatment outcomes in exposure therapy, recommending that alienation appraisals be targeted directly via cognitive restructuring to improve treatment outcomes for these survivors (Ehlers et al., 1998a).

Previous research has found that alienation appraisals were significantly related to symptoms of PTSD, dissociation and depression in trauma-exposed university students and community samples of trauma-exposed women with histories of childhood abuse and domestic abuse (DePrince, Chu, & Pineda, 2011). Alienation appraisals accounted for significant variance in the severity of PTSD, dissociative and depressive symptoms in a sample of teenage girls in the child welfare system who had histories of childhood abuse and neglect (Srinivas, DePrince, & Chu, 2015). Research has also demonstrated that alienation appraisals were a strong predictor of

the profile of PTSD symptoms reported by female survivors of domestic abuse (Hebenstreit, Maguen, Koo, & DePrince, 2015). Alienation appraisals were also found to differentiate between trauma-exposed adults diagnosed with Dissociative Identity Disorder and PTSD (DePrince, Huntjens, & Dorahy, 2015). This study demonstrated that participants diagnosed with Dissociative Identity Disorder reported higher scores on the measure of alienation appraisals than those diagnosed with PTSD (DePrince et al., 2015). This suggests that alienation appraisals may be significant in terms of how psychological distress presents itself in survivors of trauma. This emerging evidence-base suggests that alienation appraisals have important implications for psychological distress for a range of trauma types across clinical and non-clinical populations.

To date, no systematic review has been conducted to explore the relationship between alienation appraisals and PTSD symptoms, despite the important clinical implications posed by this relationship. Research has evidenced that adults with PTSD can successfully change negative appraisals after being exposed to trauma with psychological therapy (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005; Price, MacDonald, Adair, Koerner, & Monson, 2016). Evidence from randomised controlled trials has shown that cognitive therapy, compared to a waitlist control group, was associated with significant reductions in PTSD symptoms in trauma-exposed adults, unsurprisingly the waitlist control group showed no improvement (Ehlers et al., 2005). Positive treatment outcomes of cognitive therapy for PTSD were predicted by reductions in negative trauma appraisals (Ehlers et al., 2005). Cognitive Behavioural Therapy for PTSD, based on the Ehlers and Clark model, has been shown to reduce negative appraisals which in turn reduce PTSD symptoms in survivors (Karl, Rabe, Zöllner, Maercker, & Stopa, 2009). Early research suggested

that individuals who endorse feelings of alienation after experiencing a trauma may be particularly vulnerable to persistent PTSD symptoms which may require cognitive restructuring as well as exposure therapy (Ehlers et al., 1998a). Thus, the findings of this systematic review may have clinical implications for practitioners working with trauma-exposed individuals, as alienation appraisals could be directly addressed in therapy. The aim of this review was to measure the magnitude of the relationship between alienation appraisals and symptoms of post-traumatic stress in trauma-exposed adults using a random-effects meta-analysis. A random-effects meta-analysis was chosen to measure the relationship between alienation appraisals and symptoms of post-traumatic stress in trauma-exposed adults.

Method

Protocol and Registration

The systematic review protocol was uploaded on PROSPERO on 22nd August 2018. http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42018107380

Search

Studies were identified following a systematic search for studies between 1980 (when PTSD was first introduced in the DSM) in the following databases: SCOPUS, Web of Science, PsycINFO, CINAHL Plus, MEDLINE and the National Center for PTSD Research Published International Literature on Traumatic Stress (PILOTS) databases. Searches did not specify a publication type. See appendix for full search syntax used for each database. The search was conducted for articles published since 1980, on or before the 8th of February 2019. Data was managed using RefWorks software.

Studies included in the meta-analysis met the following inclusion criteria; (a) participants were indirectly exposed to, witnessed or directly experienced a traumatic

event which was sufficient to meet Criterion A in DSM-4 and/or DSM-5 diagnostic criteria for Post-Traumatic Stress Disorder; (b) participants aged 18 years or older; (c) included a quantitative questionnaire measure of both PTSD symptoms and alienation; (d) alienation is operationally defined as feeling disconnected from yourself and other people; (e) reported a correlation between alienation appraisals and PTSD symptoms, or this information was obtained by authors on request; and (f) papers published in English-language. For articles that met the full eligibility criteria but did not report a correlation between alienation and PTSD symptoms, study authors were contacted directly. Three authors were contacted to request correlational data; two authors provided this data on request.

Meta-analytic Procedure

A random-effects meta-analysis was chosen a priori due to the heterogeneity in the questionnaire measures used to assess alienation and PTSD symptoms, as well as the diversity in the types of trauma experienced in each sample. The PRISMA guidelines were followed throughout; there were no missing data.

Selection of Studies

Through electronic database searching 463 articles were identified, with 1 other article identified as recently published by a member of the research team. The following number of articles were found; 112 from SCOPUS, 67 from Web of Science, 110 from PsycInfo, 40 from MEDLINE, 26 from CINAHL Plus and 108 from PILOTS. After removing 210 duplicates, the title and abstracts of 254 articles were screened. After the first phase of screening each record by title and abstract, two independent reviewers then screened the full-text of each paper using the inclusion and exclusion criteria. MedCalc, Version 18 (2018) was used to calculate agreement between the two reviewers using the Kappa k statistic. Results showed

total agreement between both reviewers after full-text screening ($\kappa = 1.0$) (Cohen, 1960; Fleiss, Levin, & Paik, 2013).

Of the 9 studies which met full eligibility criteria that were included in the meta-analysis, 1 study was prospective in design, the remaining 8 were cross-sectional. In total, 1189 participants were included, the mean sample size was 132.11 (*SD* = 74.13, range = 46 to 259). Participants had a mean age of 38.42 years (range = 18 to 70).

Risk of Bias & Quality Assessment of Included Studies

Once the full-text of each paper was screened independently by two reviewers, each paper which met full eligibility criteria for inclusion in the meta-analysis was quality assessed for the risk of bias. The two independent reviewers scored each study using the QATSDD quality assessment tool; this tool is suitable for evaluating the risk of bias in both qualitative and quantitative studies in systematic review research (Sirriyeh, Lawton, Gardner, & Armitage, 2012). The QATSDD was deemed the most suitable quality assessment tool for the current review, as it enables studies with similar research questions, but diverse designs, to be assessed using the same criteria. As all the studies which met eligibility criteria were quantitative, only the 14 items for evaluating quantitative studies, which were of relevance to studies reporting correlations between two variables, were used in the quality assessment of the articles include in the current meta-analysis. Scores ranged from 0 to 42, higher scores indicate higher quality research. The authors recommend that studies scoring above 60% are at low risk of bias and studies below 60% are at higher risk of bias; these guidelines have been used to assess risk of bias in other systematic reviews (Sirriyeh et al., 2012; Tatar et al., 2018). The QATSDD was

selected as it allowed studies which reported correlational data between two variables of interest to be quality assessed; rather than the evaluation of treatment outcomes.

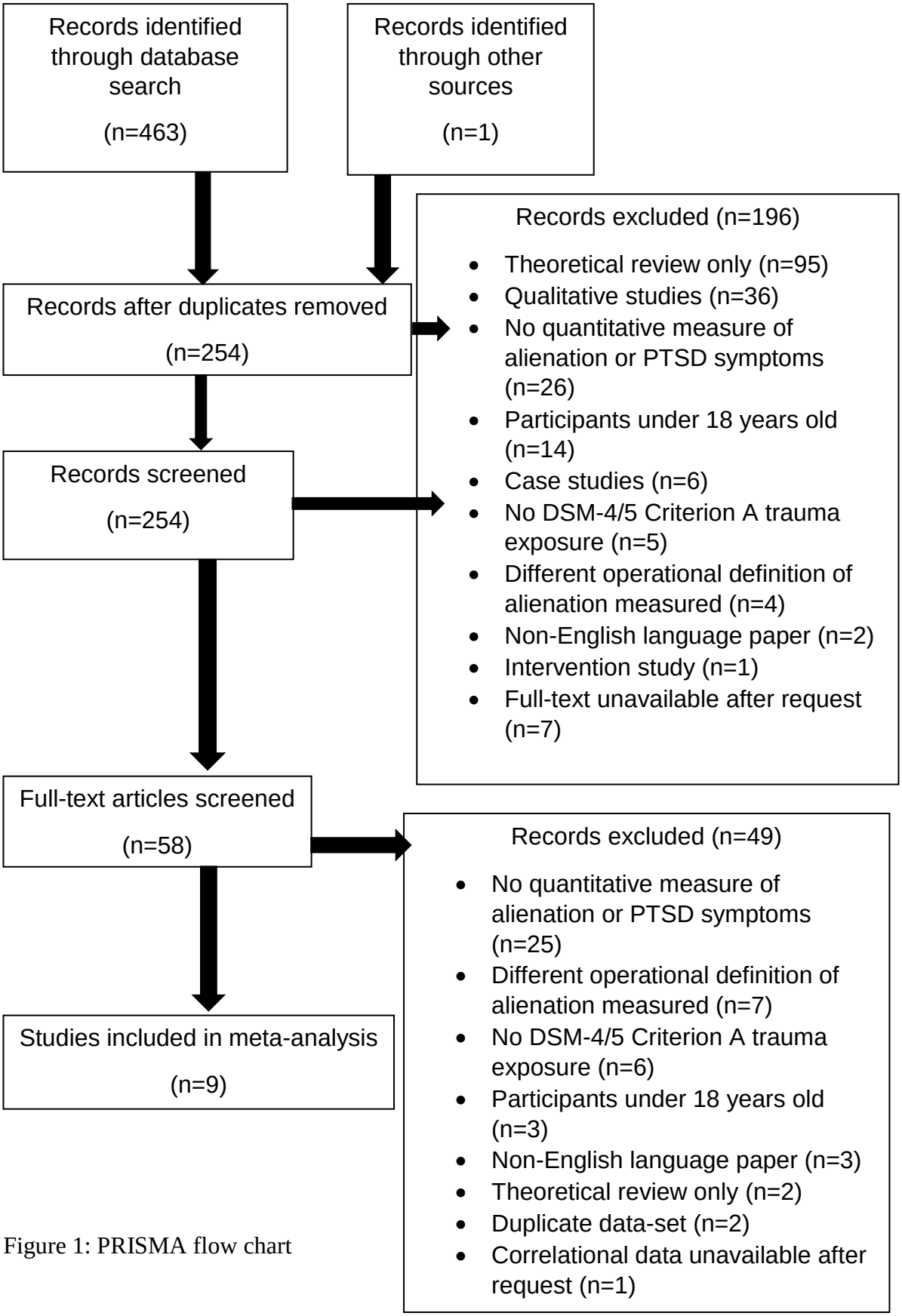

Figure 1: PRISMA flow chart

Results

Data Items

The correlation coefficient (Pearson's *r*) and sample size was extracted from each study and used in the random-effects meta-analysis. For longitudinal studies that reported correlations between alienation and PTSD symptoms at different time points, the correlation for Time 1 data was extracted throughout to ensure maximum sample size and to minimise any potential intervention effects. Table 1 shows additional study characteristics of interest including the participants, age, gender ratios, alienation measure used, PTSD symptom measure used and study design.

Effect Size for the Relationship Between Alienation Appraisals and PTSD Symptoms

A random effects meta-analysis for the relationship between alienation appraisals and PTSD symptoms showed a total effect size of $r = .57$, with 95% confidence intervals between .46 and .66 ($Z = 8.41$, $p < .001$) (Cohen, 1988; Rosenthal, 1996). The effect size was large, suggesting that as alienation appraisals increase, so do symptoms of PTSD. The effect size remained a similar magnitude when the one study at high risk of bias (Chapleau et al., 2014) was removed ($r = .58$), when the one prospective study (Brondolo et al., 2017) was removed ($r = .57$), or when both these studies were removed ($r = .58$).

The Q test revealed a high level of heterogeneity ($Q = 50.52$, $p < .001$). The I^2 value indicated that 84.2% of the effect size variance is attributable to variance between the studies included in the meta-analysis ($I^2 = 84.16$; 95% CI; (71.59 to 91.17)).

The effect sizes for studies included in the meta-analysis ranged from .35 to .74. See Figure 2 forest plot which states the effect size for each included study.

Risk of Bias & Quality Assessment of Included Studies

The intraclass correlation coefficient of quality ratings between the two independent reviewers was high 0.98 (95% CI (0.92 to 0.99). Total scores ranged from 25 to 33 out of a possible total score of 42. Results showed that 8 out of 9 studies were assessed as low risk of bias, only one study was judged as a high risk of bias (Chapleau, Bell, & Lysaker, 2014). See Appendix 2 for full quality assessment results for each study. The funnel plot shows no significant asymmetry which again suggests low risk of publication bias; see Figure 2.

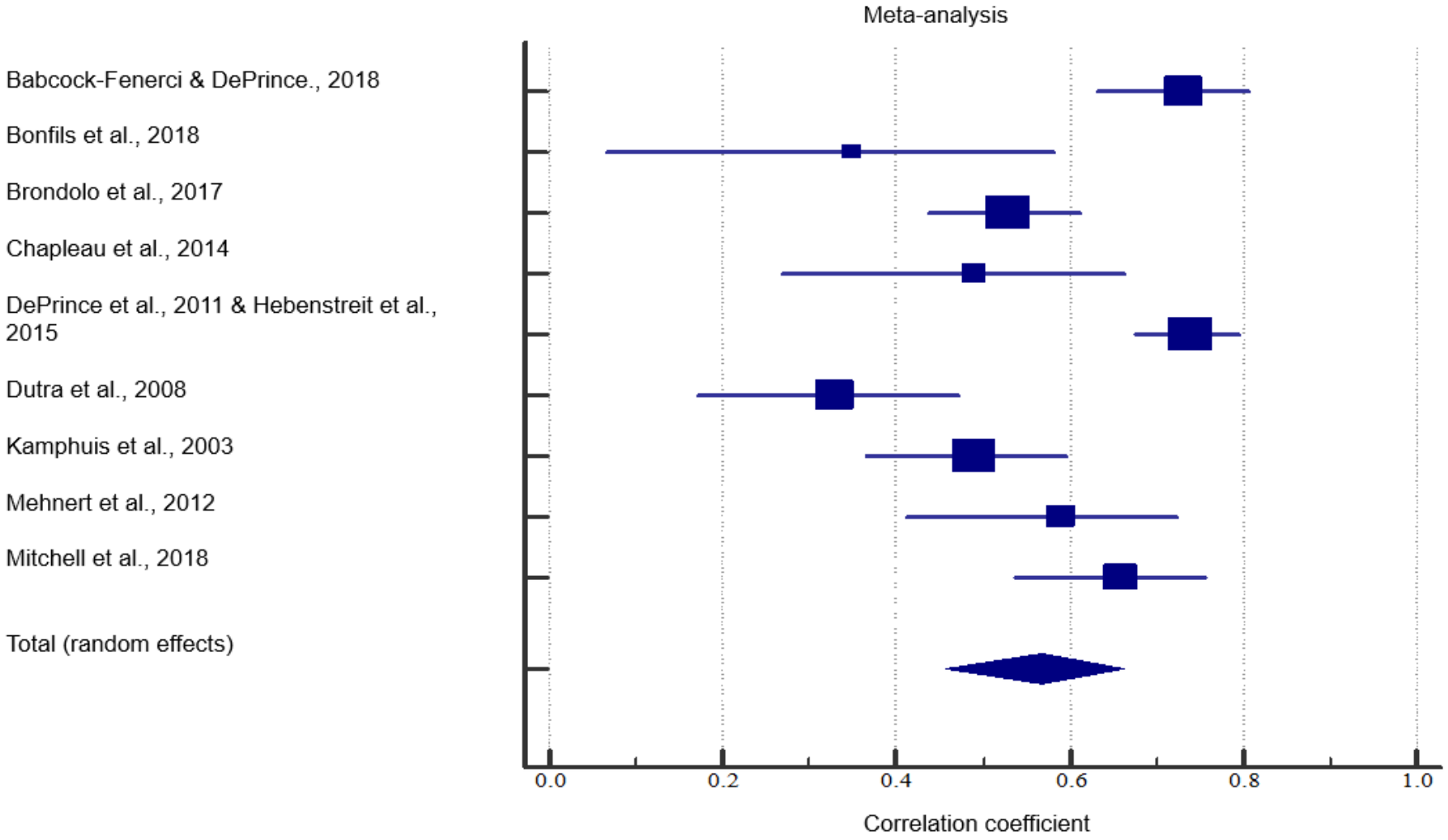

Figure 2: A Forest Plot of the relationship between alienation appraisals and PTSD symptoms

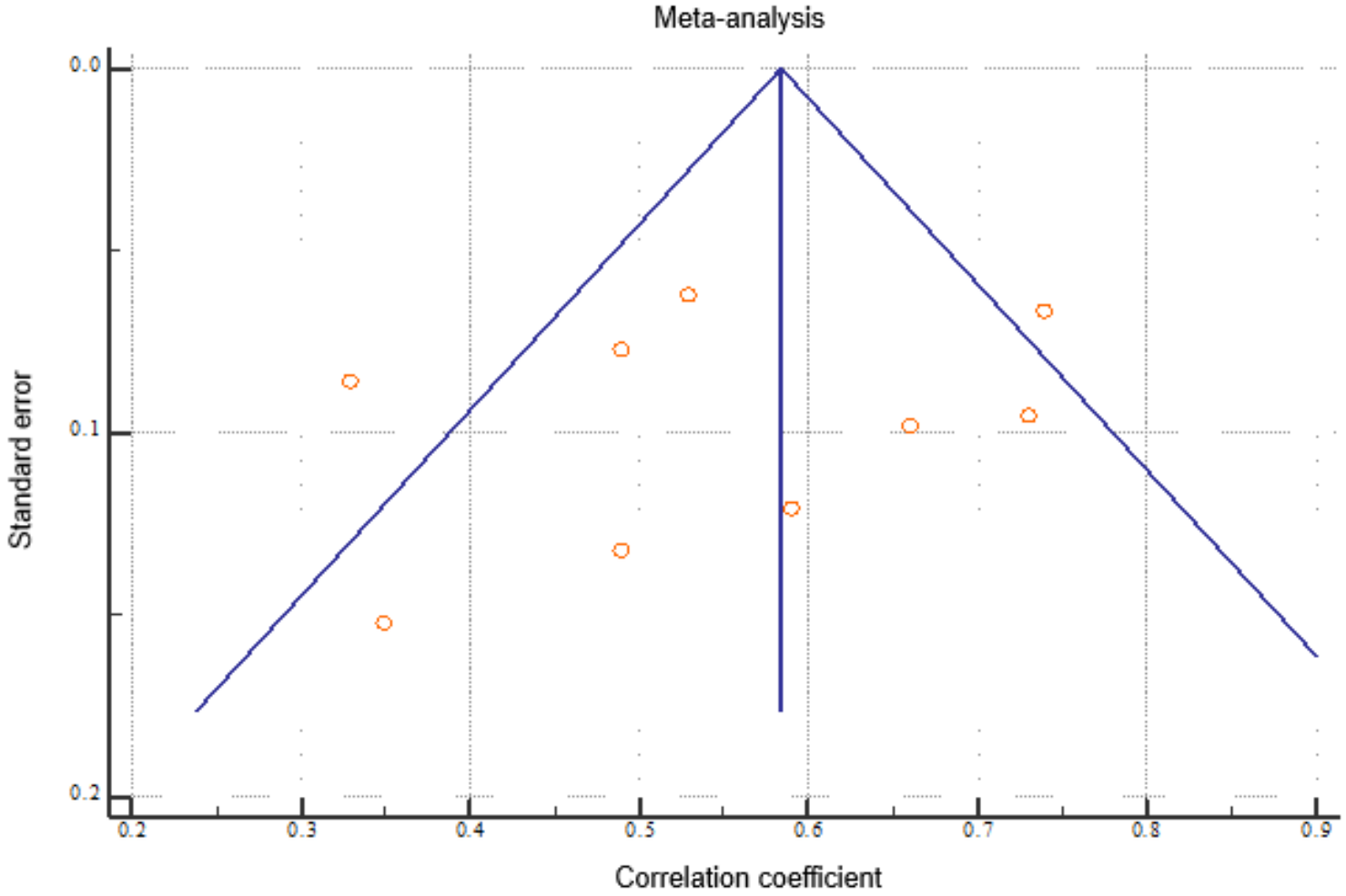

Figure 3: Funnel plot of the relationship between alienation appraisals and PTSD symptoms

Discussion

This systematic review revealed a strong, positive association between alienation appraisals and PTSD symptoms. This result provides additional empirical support for Ehlers and Clark's cognitive model of PTSD, which highlights the importance of negative appraisals after a traumatic experience (Ehlers & Clark, 2000). Furthermore, the results point specifically to the importance of the emerging evidence base of the role of alienation appraisals in post-traumatic stress.

Quality of Included Studies

Results of the quality assessment highlight several strengths of the included studies; eight out of nine included studies were judged to be at low risk of bias (Babcock Fenerci RL & DePrince AP, 2018; Bonfils et al., 2018; Brondolo, Eftekharzadeh, Clifton, Schwartz, & Delahanty, 2017; DePrince et al., 2011; Dutra, Callahan, Forman, Mendelsohn, & Herman, 2008; Kamphuis, Emmelkamp, & Bartak, 2003; Mehnert, Nanninga, Fauth, & Schäfer, 2012; Mitchell et al., 2018). Strengths of these studies included being grounded in an explicit theoretical framework, clear aims, good fit between stated research question and method of data collection and statistical analysis and critical discussion of strengths and limitations. Good justification for the method of analysis was evident across the studies, except for one brief paper (Dutra et al., 2008); however, this may have been omitted due to word count limitations.

Only one study was deemed to be at high risk of bias (Chapleau et al., 2014). This study provided less detail in terms of the following criteria which were only slightly fulfilled; representativeness of the sample with a target group of a reasonable size, rationale for choice of data collection tools and the statistical assessment of reliability and validity of measurement tools used.

Limitations

A limitation of all included studies is that there was not an equal mix of male and female participants in the trauma-exposed samples which limit the generalisability of the results for each study individually. Five studies reported data for samples which were either exclusively, or for the majority, female. The remaining four studies reported data for samples that were either exclusively, or for the majority, male. However, the effect sizes between alienation and PTSD symptoms were medium to very large for all studies, suggesting that the role of alienation is significant in post-traumatic stress, regardless of gender.

A methodological criticism of the current review is that OpenGrey was not used to search for articles, thus, potential studies which may have met full inclusion criteria for the meta-analysis, but reported non-significant findings, may have been missed. Publication bias may have meant that relevant studies with non-significant results were omitted from the review as these studies are less likely to be published and captured in the systematic search. However, it could be argued that excluding OpenGrey from the search may have helped to reduce the number of poor-quality studies reviewed in the selection process. Results showed that the papers included in the meta-analysis, despite being diverse in the questionnaire measures used, were predominantly high in quality with a low risk of bias. Furthermore, five bibliographic databases were systematically searched including the PILOTS database to ensure the search was as thorough and comprehensive as possible. The PILOTS database was searched to reduce the risk of publication bias as this database often includes unpublished works and dissertations; many of which were captured as search results and screened against the eligibility criteria. The funnel plot shows no

significant asymmetry which suggests that publication bias was not a significant issue in the current meta-analytic review (see Figure 3).

In terms of study design, eight of the nine studies included were cross-sectional; thus, changes in alienation and PTSD symptom were not measured over time which limits the theoretical and directional conclusions which can be drawn from the review. Several of the included studies recruited clinical samples of participants who were in therapy and the stage of therapy was not controlled for; thus, the data presented provides a snapshot in time only.

A further limitation is that there was significant heterogeneity across the studies included in the meta-analysis. Results showed that 84.2% of the variance in effect size was attributed to variance between studies. This implicates other causal factors which may mediate the observed relationship between alienation appraisals and post-traumatic stress. Despite this heterogeneity being viewed as a methodological weakness, the broad inclusion criteria ensured that the review was as broad as possible to collate evidence across studies which explored alienation and post-traumatic stress. Broad inclusion criteria were set as this ensured that the scope of the systematic review was comprehensive enough to capture evidence of the role of alienation across diverse studies using different questionnaire measures, varied participants and trauma types.

Clinical Implications

Despite heterogeneity in the questionnaire measures used to capture alienation and PTSD symptoms as well as variance in the type of trauma experienced in each sample, the effect sizes ranged from medium to very large for all included studies. Furthermore, all effect sizes ranged from medium to very large for samples of individuals who have experienced childhood abuse, interpersonal violence, war

and those who were indirectly exposed to trauma in their employment. Therefore, the current review tentatively posits that alienation appraisals are significant in post-traumatic stress, across a range of different types of trauma, that warrants further attention. Further, the results may provide partial support for theories arguing that negative appraisals contribute to the maintenance of post-traumatic stress (Halligan et al., 2003; Meiser-Stedman et al., 2009). In particular, the large effect size observed in the current meta-analysis suggests that alienation appraisals may contribute to the development, or maintenance of PTSD symptoms. However, this assertion is limited as the data used were correlational. Changes in PTSD symptoms and alienation were not measured over time as eight out of nine included studies were cross-sectional in design. Future research to explore how alienation impacts on trauma survivors, in terms of the development of PTSD symptoms, maintenance of these symptoms, or perhaps both, is recommended.

Ehlers and Clark's (2000) seminal cognitive model of PTSD emphasised the importance of negative appraisals, which is evidenced in the large effect size found between alienation appraisals and PTSD symptoms. Early research pointed to alienation following trauma (e.g., Roth & Newman, 1990) and suggested that individuals who feel highly alienated after a trauma may require cognitive restructuring as well as graded exposure within the cognitive treatment model of PTSD (Ehlers et al., 1998b). That early work combined with the evidence presented in this systematic review points to the potential value of clinically assessing alienation appraisals when exploring the impact of the traumatic experience on the survivor to inform the psychological formulation and treatment plan.

Neither the cognitive model nor recent research on alienation (e.g., Mitchell et al., 2018) explain why alienation appraisals are so crucial in trauma-related

distress or how alienation could be targeted directly via Cognitive Behaviour Therapy (Ehlers & Clark, 2000); however, several considerations can be integrated from the larger literature on therapy and treatment for posttraumatic distress. One proposed means of targeting alienation appraisals is focusing on developing therapeutic alliance and a strong therapeutic relationship. Evidence suggests that the therapeutic relationship is a predictor of therapeutic outcome, across a range of therapeutic modalities (Horvath & Luborsky, 1993; Martin, Garske, & Davis, 2000). Research suggests that the strength of the therapeutic alliance, characterised by the client trusting and feeling respected by their therapist, as well as feeling that their therapist cares about them, is predictive of reduced PTSD symptoms for trauma-exposed adults (Cloitre, Chase Stovall-McClough, Miranda, & Chemtob, 2004). Evidence shows that stronger therapeutic alliance is associated with increased treatment adherence for adults with PTSD (Keller, Zoellner, & Feeny, 2010). It is tentatively suggested that strong therapeutic alliance may indirectly target alienation appraisals by providing a safe relationship in which the trauma survivor can trust, connect and feel understood by another person (Hembree, Rauch, & Foa, 2003). While fostering a strong therapeutic alliance would generally be recommended when working with adults with PTSD, this review suggests the alliance itself might be an important means of addressing alienation appraisals that are involved in the distress itself.

Future Directions and Conclusions

The exclusion criteria limited the studies included in the review to adult samples only. This means that the large effect size found between alienation appraisals and PTSD symptoms in adults cannot be assumed in trauma-exposed children and adolescents. However, a recent systematic review found a very similar

effect size (r = .58) between appraisals and PTSD symptoms in children and adolescents (Mitchell et al., 2017), suggesting that cognitive appraisals may play a key role in post-traumatic stress for both young people and adults. As the specific role of alienation appraisals was not addressed in that review, further research exploring alienation in trauma-exposed children and adolescents may be warranted given this study, as well as initial alienation-posttraumatic stress links identified in adolescents (Srinivas et al., 2015).

Although a strong, positive relationship was found between alienation appraisals and PTSD symptoms, the mechanism of this relationship remains unclear. Future research to explore why alienation appraisals are significant in post-traumatic stress may further help to inform therapeutic approaches to target alienation appraisals in trauma survivors.

In conclusion, this study is the first to review the emerging evidence-base of the relationship between alienation appraisals and PTSD symptoms in trauma-exposed adults. Recent research which demonstrated that alienation appraisals significantly mediated the relationship between trauma exposure and PTSD symptoms is supported in the current review (Mitchell et al., 2018). The conclusions drawn from this meta-analytic review are strengthened by the high quality and low risk of bias of the studies included. The findings are clinically useful for practitioners who work therapeutically with trauma-exposed adults.

References

Andrews, B., Brewin, C. R., Rose, S., & Kirk, M. (2000). Predicting PTSD symptoms in victims of violent crime: The role of shame, anger, and childhood abuse. *Journal of Abnormal Psychology, 109*(1), 69.

Babcock Fenerci RL, & DePrince AP. (2018). Shame and alienation related to child maltreatment: Links to symptoms across generations. *Psychological Trauma: Theory, Research, Practice, and Policy, 10*(4), 419-426.

Barlow, M. R., Goldsmith Turow, R. E., & Gerhart, J. (2017). Trauma appraisals, emotion regulation difficulties, and self-compassion predict posttraumatic stress symptoms following childhood abuse. *Child Abuse & Neglect, 65*, 37-47.

Bonfils, K. A., Lysaker, P. H., Yanos, P. T., Siegel, A., Leonhardt, B. L., James, A. V., . . . Davis, L. W. (2018). Self-stigma in PTSD: Prevalence and correlates. *Psychiatry Research, 265*, 7-12.

Breitenbecher, K. H. (2006). The relationships among self-blame, psychological distress, and sexual victimization. *Journal of Interpersonal Violence, 21*(5), 597-611.

Brondolo, E., Eftekharzadeh, P., Clifton, C., Schwartz, J. E., & Delahanty, D. (2017). Work-related trauma, alienation, and posttraumatic and depressive symptoms in medical examiner employees. *Psychological Trauma: Theory, Research, Practice, and Policy, 10*(6), 689-697.

Chapleau, K. M., Bell, M. D., & Lysaker, P. H. (2014). The relationship between post-traumatic symptom severity and object relations deficits in persons with schizophrenia. *British Journal of Clinical Psychology, 53*(2), 157-169.

Cloitre, M., Chase Stovall-McClough, K., Miranda, R., & Chemtob, C. M. (2004). Therapeutic alliance, negative mood regulation, and treatment outcome in child abuse-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 72*(3), 411.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences, the concept of power analysis. Hillsdale, New Jersey: Erlbaum.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37-46.

DePrince, A. P., Chu, A. T., & Pineda, A. S. (2011). Links between specific posttrauma appraisals and three forms of trauma-related distress. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*(4), 430-441.

DePrince, A. P., Huntjens, R. J. C., & Dorahy, M. J. (2015). Alienation appraisals distinguish adults diagnosed with DID from PTSD. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(6), 578-582.

Deprince, A. P., Zurbriggen, E. L., Chu, A. T., & Smart, L. (2010). Development of the trauma appraisal questionnaire. *Journal of Aggression, Maltreatment and Trauma, 19*(3), 275-299. doi:10.1080/10926771003705072

Dutra, L., Callahan, K., Forman, E., Mendelsohn, M., & Herman, J. (2008). Core schemas and suicidality in a chronically traumatized population. *The Journal of Nervous and Mental Disease, 196*(1), 71-74.

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*(4), 319-345.

Ehlers, A., Clark, D. M., Dunmore, E., Jaycox, L., Meadows, E., & Foa, E. B. (1998a). Predicting response to exposure treatment in PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress: Official Publication of the International Society for Traumatic Stress Studies, 11*(3), 457-471.

Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., & Fennell, M. (2005). Cognitive therapy for post-traumatic stress disorder: Development and evaluation. *Behaviour Research and Therapy, 43*(4), 413-431.

Ehlers, A., Clark, D. M., Dunmore, E., Jaycox, L., Meadows, E., & Foa, E. B. (1998b). Predicting response to exposure treatment in PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress, 11*(3), 457-471. doi:10.1023/A:1024448511504

Fleiss, J. L., Levin, B., & Paik, M. C. (2013). *Statistical methods for rates and proportions* Oxford, United Kingdom: John Wiley & Sons.

Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The posttraumatic cognitions inventory (PTCI): Development and validation. *Psychological Assessment, 11*(3), 303.

Halligan, S. L., Michael, T., Clark, D. M., & Ehlers, A. (2003). Posttraumatic stress disorder following assault: The role of cognitive processing, trauma memory, and appraisals. *Journal of Consulting and Clinical Psychology, 71*(3), 419.

Hebenstreit, C. L., Maguen, S., Koo, K. H., & DePrince, A. P. (2015). Latent profiles of PTSD symptoms in women exposed to intimate partner violence. *Journal of Affective Disorders, 180*, 122-128.

Hembree, E. A., Rauch, S. A. M., & Foa, E. B. (2003). Beyond the manual: The insider's guide to prolonged exposure therapy for PTSD. *Cognitive and Behavioral Practice, 10*(1), 22-30. doi:https://doi.org/10.1016/S1077-7229(03)80005-6

Horvath, A. O., & Luborsky, L. (1993). The role of the therapeutic alliance in psychotherapy. *Journal of Consulting and Clinical Psychology, 61*(4), 561.

Kamphuis, J. H., Emmelkamp, P. M. G., & Bartak, A. (2003). Individual differences in post-traumatic stress following post-intimate stalking: Stalking severity and psychosocial variables. *British Journal of Clinical Psychology, 42*(2), 145-156.

Karl, A., Rabe, S., Zöllner, T., Maercker, A., & Stopa, L. (2009). Negative self-appraisals in treatment-seeking survivors of motor vehicle accidents. *Journal of Anxiety Disorders, 23*(6), 775-781.

Keller, S. M., Zoellner, L. A., & Feeny, N. C. (2010). Understanding factors associated with early therapeutic alliance in PTSD treatment: Adherence, childhood sexual abuse history, and social support. *Journal of Consulting and Clinical Psychology, 78*(6), 974.

Keshet, H., Foa, E. B., & Gilboa-Schechtman, E. (in press). Women's self-perceptions in the aftermath of trauma: The role of trauma-centrality and trauma-type. *Psychological Trauma : Theory, Research, Practice and Policy,* doi:10.1037/tra0000393 [doi]

Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and PTSD prevalence using DSM-IV and DSM-5 criteria. *Journal of Traumatic Stress, 26*(5), 537-547.

Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 68*(3), 438.

Mehnert, A., Nanninga, I., Fauth, M., & Schäfer, I. (2012). Course and predictors of posttraumatic stress among male train drivers after the experience of ‘person under the train' incidents. *Journal of Psychosomatic Research, 73*(3), 191-196.

Meiser-Stedman, R., Dalgleish, T., Glucksman, E., Yule, W., & Smith, P. (2009). Maladaptive cognitive appraisals mediate the evolution of posttraumatic stress reactions: A 6-month follow-up of child and adolescent assault and motor vehicle accident survivors. *Journal of Abnormal Psychology, 118*(4), 778.

Mitchell, R., Brennan, K., Curran, D., Hanna, D., & Dyer, K. F. (2017). A meta-analysis of the association between appraisals of trauma and posttraumatic stress in children and adolescents. *Journal of Traumatic Stress, 30*(1), 88-93.

Mitchell, R., Hanna, D., Brennan, K., Curran, D., McDermott, B., Ryan, M., . . . Dyer, K. F. (2018). Alienation appraisals mediate the relationships between childhood trauma and multiple markers of posttraumatic stress. *Journal of Child & Adolescent Trauma,* , 1-9.

Price, J. L., MacDonald, H. Z., Adair, K. C., Koerner, N., & Monson, C. M. (2016). Changing beliefs about trauma: A qualitative study of cognitive processing therapy. *Behavioural and Cognitive Psychotherapy*, *44*(2), 156-167. doi:10.1017/S1352465814000526

Rosenthal, J. A. (1996). Qualitative descriptors of strength of association and effect size. *Journal of Social Service Research, 21*(4), 37-59.

Roth, S., & Newman, E. (1991). The process of coping with sexual trauma. *Journal of Traumatic Stress, 4*(2), 279-297. doi:10.1007/BF00977008

Schnurr, P. P., Friedman, M. J., & Bernardy, N. C. (2002). Research on posttraumatic stress disorder: Epidemiology, pathophysiology, and assessment. *Journal of Clinical Psychology, 58*(8), 877-889.

Sirriyeh, R., Lawton, R., Gardner, P., & Armitage, G. (2012). Reviewing studies with diverse designs: The development and evaluation of a new tool. *Journal of Evaluation in Clinical Practice, 18*(4), 746-752.

Srinivas, T., DePrince, A. P., & Chu, A. T. (2015). Links between posttrauma appraisals and trauma-related distress in adolescent females from the child welfare system. *Child Abuse & Neglect, 47,* 14-23.

Tatar, O., Thompson, E., Naz, A., Perez, S., Shapiro, G. K., Wade, K., . . . Kahn, J. (2018). Factors associated with human papillomavirus (HPV) test acceptability in primary screening for cervical cancer: A mixed methods research synthesis. *Preventive Medicine, 116,* 40-50.

Woodward, M. J., Eddinger, J., Henschel, A. V., Dodson, T. S., Tran, H. N., & Beck, J. G. (2015). Social support, posttraumatic cognitions, and PTSD: The influence of family, friends, and a close other in an interpersonal and non-interpersonal trauma group. *Journal of Anxiety Disorders, 35*, 60-67.

Zang, Y., Gallagher, T., McLean, C. P., Tannahill, H. S., Yarvis, J. S., Foa, E. B., & STRONG STAR Consortium. (2017). The impact of social support, unit cohesion, and trait resilience on PTSD in treatment-seeking military personnel with PTSD: The role of posttraumatic cognitions. *Journal of Psychiatric Research, 86,* 18-25.

Zuj, D. V., Palmer, M. A., Gray, K. E., Hsu, C. K., Nicholson, E. L., Malhi, G. S., . . . Felmingham, K. L. (2017). Negative appraisals and fear extinction are independently related to PTSD symptoms. *Journal of Affective Disorders, 217,* 246-251. doi:https://doi-org.queens.ezp1.qub.ac.uk/10.1016/j.jad.2017.04.016

Study	*n*	Measure PTSD symptoms	Measure alienation	Participants	Design	Mean age (years)	Age Range or *SD*	Gender ratio	Full scale *r*	Risk of bias
Babcock Fenerci & DePrince., 2018*	113	TSC-40	Alienation subscale of TAQ	Mothers who survived maltreatment	Cross-sectional	30.2	Range 23-47	100% female	.73	Low
Bonfils et al., 2018	46	CAPS	Alienation subscale of ISMIS	Veterans	Cross-sectional	38.8	10.3	89.1% male	.35	Low
Brondolo et al., 2017	259	PDS	Factor Alienation from PTCI	Medical Examiner employees exposed to work-related trauma	Prospective	N/A	N/A	63.3% female	.53	Low
Chapleau et al., 2014	60	PCL-S	BORI	Trauma-exposed adults with schizophrenia/schizoaffective disorder	Cross-sectional	50.3	11.09	93.3% male	.49	High
DePrince et al., 2011& Hebenstreit et al., 2015 (same sample)*	227	PDS	Alienation subscale of TAQ	Female survivors of nonsexual intimate partner abuse	Cross-sectional	33.4	11.0	100% female	.74	Low
Dutra et al., 2008	137	PDS	Social isolation/ alienation subscale of YSQ-S	Trauma-exposed treatment-seeking adults	Cross-sectional	38.3	11.2	84% female	.33	Low
Kamphuis et al., 2003*	170	IES	Alienation subscale of TCIS	Female post-intimate stalking victims	Cross-sectional	21	4.23	100% female	.49	Low
Mehnert et al., 2012	71	PDS	Alienation subscale of Trauma-related thoughts & attitudes questionnaire	Male train drivers who had witnessed suicide attempts	Cross-sectional	48	7.8	100% male	.59	Low
Mitchell et al., 2018	106	PDS	Alienation subscale TAQ	Trauma-exposed treatment-seeking adults	Cross-sectional	47.34	10.82	70.5% male	.66	Low

Table 1: Summary of Included Studies

*Data provided by authors on request. Low risk of bias studies >60%, high risk <60% on QATSDD. Note: PTSD = Post-Traumatic Stress Disorder; TSC-40 = Trauma Symptom Checklist -40; TAQ = Trauma Appraisal Questionnaire; CAPS = Clinician Administered PTSD Scale; ISMIS = Internalized Stigma of Mental Illness Scale; PDS = Post-Traumatic Diagnostic Scale; PTCI = Post-Traumatic Cognitions Inventory; PCLS = Post-Traumatic Checklist Scale; BORI = Bell Object Relations Inventory; YSQ-S = Young Schema Questionnaire Short Form; IES = Impact of Events Scale; TCIS = Traumatic Constellation Identification Scale

Technical Appendix

Appendix 1 – QATSDD ratings for each included study

Study: Babcock Fenerci & DePrince, 2018				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction
Statement of aims/objectives in main body of report	2	See introduction final paragraph for each subheading	2	End of introduction
Clear description of research setting	1	See procedures and participants – online recruitment	1	Participants and procedures
Evidence of sample size considered in terms of analysis	0		0	Not commented on
Representative sample of target group of a reasonable size	2	Diverse sample but looked at maternal distress only so not generalisable to fathers	2	Agree- Just mothers not generalizable to fathers
Description of procedure for data collection	3	See procedures	3	Procedures
Rationale for choice of data collection tool(s)	1	See measures	2	Measures
Detailed recruitment data	3	See participants	3	Participants
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures, Cronbach's alpha calculated for each	2	Measures – no reference to quality of evidence as a result of measures used
Fit between stated research question and method of data collection	2	See results and limitations – could have also explored teacher reports etc	2	Data collection could have been more comprehensive (e.g. more informants)
Fit between research question and method of analysis	3	See mediation analysis	3	
Good justification for analytical method selected	3	See mediation analysis	3	

Evidence of user involvement in design	2	Not involved in design but participants completed survey about their experience of participation	2	Response to research participation questionnaire
Strengths and limitations critically discussed	3	See discussion, limitations and conclusion	2	
Total Score	30/42		30/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Bonfils et al., 2018				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	2	See introduction	2	Intro – not overly detailed
Statement of aims/objectives in main body of report	3	See introduction final paragraph	3	End of intro – stated aims
Clear description of research setting	2	See procedures and participants	3	Method
Evidence of sample size considered in terms of analysis	0		0	Not mentioned – noted only in limitations re small sample size
Representative sample of target group of a reasonable size	1	Both PTSD and Schizophrenia sample predominantly male	2	PTSD sample small, very few females in sample
Description of procedure for data collection	2	See procedures	2	
Rationale for choice of data collection tool(s)	3	See instruments	2	
Detailed recruitment data	2	See participants	2	Participants
Statistical assessment of reliability and validity of measurement tool(s)	1	See instruments, Cronbach's alpha only calculated for subscales of Internalised stigma of mental illness scale	1	Agree

Fit between stated research question and method of data collection	3	See introduction and method	2	Instruments + aims + limitations: additional stigma measure could have been used
Fit between research question and method of analysis	3	See introduction and analyses	3	In analyses
Good justification for analytical method selected	2	See analyses	3	
Evidence of user involvement in design	0	Not found in paper	0	Agree
Strengths and limitations critically discussed	3	See discussion	3	
Total Score	27/42		28/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Brondolo et al., 2017				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction
Statement of aims/objectives in main body of report	3	See introduction for hypotheses	3	End of introduction, referenced in hypotheses section
Clear description of research setting	3	See method - participants and procedure	3	Introduction and method
Evidence of sample size considered in terms of analysis	1		1	Description of but no real explanation
Representative sample of target group of a reasonable size	3	See participants	3	Participants
Description of procedure for data collection	1	See participants and procedure	1	Procedure and participants
Rationale for choice of data collection tool(s)	3	See measures	3	Measures

Detailed recruitment data	3	See participants	2	See participants – strategy used not fully described
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures	2	Measures – no reference to quality of evidence as a result of measures used
Fit between stated research question and method of data collection	3	See final paragraph of introduction	3	Aims + measures
Fit between research question and method of analysis	3	See analytic plan	3	
Good justification for analytical method selected	3	See analytic plan	3	
Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	2	See results and limitations	3	
Total Score	33/42		33/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Chapleau et al., 2014				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction
Statement of aims/objectives in main body of report	3	See objective in abstract and introduction	3	Objective + introduction
Clear description of research setting	2	See participants	3	Participants – explains research problem and target population in context of study
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	1	See participants and discussion	1	Discussion and participants

Description of procedure for data collection	2	See procedure	2	Limited details but stated in procedure
Rationale for choice of data collection tool(s)	1	See instruments	1	Instruments explained with no rationale
Detailed recruitment data	2	See participants	2	Participants
Statistical assessment of reliability and validity of measurement tool(s)	1	See instruments	1	In instruments
Fit between stated research question and method of data collection	2	See instruments and discussion for limitations and possible additional use of qualitative methods	2	Multi-method assessment of object relations could have been used
Fit between research question and method of analysis	2	See data analysis and discussion for limitations and possible additional use of qualitative methods	2	Data analysis + limitations
Good justification for analytical method selected	3	See data analysis	3	Analysis section
Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	3	See discussion and limitations	3	
Total Score	25/42		26/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: DePrince et al., 2011				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction

Statement of aims/objectives in main body of report	3	See final paragraph of introduction	3	Introduction
Clear description of research setting	3	See participants	3	Participants
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	2	See participants; 2 out of 3 samples female-only	2	Agreed – 2 out of 3 of samples were female participants
Description of procedure for data collection	3	See procedure	3	Procedure
Rationale for choice of data collection tool(s)	3	See measures	3	In tools
Detailed recruitment data	3	See procedure and participants	3	Good description for all 3 samples
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures	2	Alpha measured in each sample
Fit between stated research question and method of data collection	3	See final paragraph of introduction and measures	3	
Fit between research question and method of analysis	3	See final paragraph of introduction and results	3	
Good justification for analytical method selected	3	See results	3	
Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	2	See discussion, limitations and conclusion	2	
Total Score	33/42		33/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Dutra et al., 2008 *brief report and word count limits may reduce score				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction

Statement of aims/objectives in main body of report	3	See final paragraph of introduction	3	Abstract and introduction
Clear description of research setting	3	See participants, measures and methods	3	
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	2	See participants, sample predominantly female	2	Agreed – 84% female sample
Description of procedure for data collection	2	See measures and methods	2	Measures and method section
Rationale for choice of data collection tool(s)	3	See measures and methods	3	Measures and method section
Detailed recruitment data	2	See participants, no info on number approached	2	In participants
Statistical assessment of reliability and validity of measurement tool(s)	1	See measures	1	In measures
Fit between stated research question and method of data collection	3	See measures and method	2	Did you mean full YSQ could have been used in this section ?
Fit between research question and method of analysis	2	See data analysis and final paragraph of discussion, could have used full YSQ questionnaire	3	
Good justification for analytical method selected	2	See data analysis	1	
Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	2	See discussion	2	In discussion
Total Score	28/42		27/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Hebenstreit et al., 2015				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction
Statement of aims/objectives in main body of report	3	See introduction	3	Introduction
Clear description of research setting	3	See study population and data source	3	Population + data source
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	2	See study population, data source and limitations; not fully representative of all domestic abuse survivors	2	All female given research aims – not generalizable to all domestic abuse victims
Description of procedure for data collection	2	See data source	2	In data source
Rationale for choice of data collection tool(s)	3	See measures	3	In measures
Detailed recruitment data	3	See study population and data source	3	Population + data source
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures	2	Cronbach's alpha measured
Fit between stated research question and method of data collection	3	See analysis	3	Analyses
Fit between research question and method of analysis	3	See analysis	3	""
Good justification for analytical method selected	3	See analysis	3	""
Evidence of user involvement in design	0		0	

Strengths and limitations critically discussed	3	See discussion, limitations and conclusions	3	
Total Score	33/42		33/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Kamphuis et al., 2003				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	2	See introduction	2	In introduction
Statement of aims/objectives in main body of report	3	See introduction	3	Introduction and abstract
Clear description of research setting	2	See participants and procedure	2	In participants + procedure
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	1	Female sample only, little detail on demographics	1	Female sample only, no information on age /ethnicity etc. of study population
Description of procedure for data collection	2	See procedure and measures, some details omitted	2	
Rationale for choice of data collection tool(s)	2	See measures	2	Measures
Detailed recruitment data	3		3	Participants + measures
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures	2	Measures
Fit between stated research question and method of data collection	3	See introduction and measures	3	

Fit between research question and method of analysis	3	See analytic strategy	3	
Good justification for analytical method selected	3	See analytic strategy	3	
Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	3	See discussion	2	Discuss
Total Score	29/42		28/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Mehnert et al., 2012				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	2	See introduction	2	Introduction
Statement of aims/objectives in main body of report	3	See introduction	3	Introduction + abstract
Clear description of research setting	3	See study design and rehabilitation programme	3	Study design + rehab program
Evidence of sample size considered in terms of analysis	0		0	
Representative sample of target group of a reasonable size	2	Male treatment-seeking sample only	2	Male sample only
Description of procedure for data collection	1	See participants	1	In participants; basic description, lacking information
Rationale for choice of data collection tool(s)	1		2	Discuss
Detailed recruitment data	3	See participants	3	Participants + design
Statistical assessment of reliability and validity of measurement tool(s)	1	See study variables and measures	1	In measures
Fit between stated research question and method of data collection	3	See study variables and measures	3	
Fit between research question and method of analysis	3	See results	3	Results
Good justification for analytical method selected	3	See results	2	“”

Evidence of user involvement in design	0		0	
Strengths and limitations critically discussed	2	See discussion	2	In discussion
Total Score	27/42		27/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

Study: Mitchell et al., 2018				
Criteria	**REVIEWER 1 Score**	**REVIEWER 1 Comments**	**REVIEWER 2 Score**	**REVIEWER 2 Comments**
Explicit theoretical framework	3	See introduction	3	Introduction
Statement of aims/objectives in main body of report	3	See introduction	3	End of introduction
Clear description of research setting	3	See participants	3	Participants
Evidence of sample size considered in terms of analysis	0	Not mentioned	0	
Representative sample of target group of a reasonable size	2	See results (first paragraph)	2	
Description of procedure for data collection	2	See procedure	2	Procedure
Rationale for choice of data collection tool(s)	3	See measures	3	In measures
Detailed recruitment data	1	See participants	1	Limited information provided
Statistical assessment of reliability and validity of measurement tool(s)	2	See measures	2	Measures, IC for sample included
Fit between stated research question and method of data collection	3	See measures	3	Measures
Fit between research question and method of analysis	3	See analyses	3	Analyses
Good justification for analytical method selected	3	See analyses	3	“”
Evidence of user involvement in design	0	Not mentioned	0	
Strengths and limitations critically discussed	3	See discussion	3	In discussion
Total Score	31/42		31/42	
Key: 0 = Not at all 1 = Very slightly 2 = Moderately 3 = Complete				

QATSDD Quality Assessment Ratings

One limitation of the QATSDD is that the quality score can be lower for brief reports as there is an insufficient word count to describe all assessment items e.g. recruitment processes or service-user involvement in design, in enough detail to warrant a higher score. Despite this limitation, statistical analysis revealed substantial inter-reviewer reliability and test-retest reliability of the QATSDD (Sirriyeh et al., 2012). There are no cut-off scores, or qualitative descriptors which differentiate high quality from poor quality papers. It could be argued that adhering to such qualitative descriptors of the quality of studies is too reductionist to examine each study in enough depth (Dempster, 2011). As the QATSDD is not prescriptive, it is most useful in assisting reviewers in examining the quality of each paper in-depth, using this knowledge to better inform the conclusions that can be deduced from the studies included in the review (Fenton, Lauckner, & Gilbert, 2015).

Appendix 2: Effect sizes for all included studies

Study	Sample size	Correlation coefficient	95% CI	*Z*	*p*	Weight (%)	
						Fixed	Random
Babcock Fenerci & DePrince., 2018	113	.73	.63 to .80			9.47	11.31
Bonfils et al., 2018	46	.35	.07 to 0.58			3.70	8.88
Brondolo et al., 2017	259	.53	.43 to .61			22.03	12.57
Chapleau et al., 2014	60	.49	.27 to .66			4.91	9.72
DePrince et al., 2011 & Hebenstreit et al., 2015	227	.74	.68 to .79			19.28	12.42
Dutra et al., 2008	137	.33	.17 to 0.47			11.53	11.68
Kamphuis et al., 2003	170	.49	.37 to 0.60			14.37	12.03
Mehnert et al., 2012	71	.59	.41 to .72			5.85	10.21
Mitchell et al., 2018	106	.66	.53 to .76			8.86	11.18
Total (fixed effects)	1189	.58	.54 to .62	22.753	<.001	100.00	100.00
Total (random effects)	1189	.57	.46 to .66	8.414	<.001	100.00	100.00

Appendix 3: Tests for Heterogeneity Results

Q	50.52
DF	8
Significance level	$p < .001$
I^2 (inconsistency)	84.16%
95% CI for I^2	71.59 to 91.17

Appendix 4 Search Syntax

Database	Syntax
SCOPUS	(TITLE-ABS-KEY ("Post-Traumatic Stress Disorder" OR "PTSD" OR "Posttraumatic Stress" OR "Posttraumatic Stress Disorder" OR "Post-traumatic stress disorder" OR "Traumatic neurosis") AND TITLE-ABS-KEY (alienation))
Web of Science	**TOPIC:** ("Post-Traumatic Stress Disorder" or "PTSD" or "Posttraumatic Stress" or "Posttraumatic Stress Disorder" or "Post-traumatic stress disorder" or "Traumatic neurosis") *AND* **TOPIC:** (alienation) *Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=1980-2018*
PsycINFO and Medline ALL	1. alienation.mp. 2. (Post-Traumatic Stress Disorder or PTSD or Posttraumatic Stress or Posttraumatic Stress Disorder or Post-traumatic stress disorder or Traumatic neurosis).mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures] 3. 1 and 2
CINAHL Plus	TX ("Post-Traumatic Stress Disorder" or "PTSD" or "Posttraumatic Stress" or "Posttraumatic Stress Disorder" or "Post-traumatic stress disorder" or "Traumatic neurosis") AND TX alienation Limiters - Publication Year: 1980-2018 Search modes - Boolean/Phrase
PILOTS	(("Post-Traumatic Stress Disorder" OR "PTSD" OR "Posttraumatic Stress" OR "Posttraumatic Stress Disorder" OR "Post-traumatic stress disorder" OR "Traumatic neurosis") AND alienation Additional limits - ☑ Date: After 1980

Exploring the relationship between alienation appraisals, trauma, posttraumatic stress and depression

Abstract

Cognitive models highlight the importance of negative trauma appraisals in maintaining symptoms of Posttraumatic Stress Disorder (PTSD). Recent research demonstrated that alienation appraisals; feeling disconnected from the self and others, are particularly salient in trauma-related distress. Evidence suggests that alienation appraisals fully mediated the relationship between trauma exposure and symptoms of posttraumatic stress and depression in trauma-exposed adults. The current study explored the role of alienation appraisals in student and clinical samples, assessing if alienation appraisals significantly mediated the relationship between cumulative trauma and markers of trauma-related distress. Secondly, this study explored whether other factors including alexithymia, social support and loneliness, could also mediate the relationship between cumulative trauma and markers of trauma-related distress, clarifying the mediating role of alienation. Mediation and hierarchical regression models were tested with questionnaire data collected from a student sample (N = 100) and a clinical sample of trauma-exposed treatment-seeking adults (N = 93). In the student sample, alienation (B = 1.27) fully mediated the relationship between cumulative trauma and posttraumatic stress, but not depression. When alexithymia, social support and loneliness were entered as parallel mediators, only alienation appraisals (B = 1.03) significantly mediated the relationship between cumulative trauma and posttraumatic stress. For the clinical sample, alienation appraisals (β = .53) were the only significant predictor of posttraumatic stress symptoms whilst alienation appraisals (β = .75), and to a lesser extent, social support (β = .19) and loneliness (β = .30), significantly predicted

depression. Alienation was shown to be a salient predictor of posttraumatic distress. Limitations and clinical implications are discussed.

Ehlers and Clark's (2000) cognitive model of Posttraumatic Stress Disorder (PTSD) emphasises the clinical significance of the negative appraisals that people often make following exposure to trauma. Appraisals have been defined as "people's assessments of their thoughts, feelings and behaviours" (p. 276, DePrince, Zurbriggen, Chu & Smart, 2010). The role of negative appraisals in posttraumatic stress symptoms has been well evidenced in trauma research. A recent meta-analytic review showed a large effect size between negative appraisals and posttraumatic stress in children and adolescents who have experienced trauma (Mitchell, Brennan, Curran, Hanna, & Dyer, 2017). Research has also suggested that negative appraisals can maintain posttraumatic stress symptoms in trauma-exposed adults (Halligan, Michael, Clark, & Ehlers, 2003).

Several appraisal types have been found to be related to distress in trauma survivors, however, there is a growing evidence-base which supports appraisals of alienation as particularly salient in trauma-related distress. Alienation has been defined as the belief that one is disconnected from oneself and others (DePrince, Chu, & Pineda, 2011). The significance of alienation in posttraumatic stress is not a newly discovered phenomenon and has been found in varied samples of individuals who have endured diverse traumatic experiences. Alienation appraisals have been significantly related to posttraumatic stress symptoms in war veterans (Bonfils et al., 2018), trauma-exposed undergraduate student and community samples (DePrince, Chu, & Pineda, 2011), child abuse and neglect survivors (Srinivas, DePrince, & Chu, 2015), mothers with histories of childhood maltreatment (Babcock-Fenerci & DePrince, 2018), domestic abuse survivors (Hebenstreit, Maguen, Koo, & DePrince,

2015), and train drivers who had experienced “person under the train” incidents (Mehnert, Nanninga, Fauth, & Schäfer, 2012). Evidence also demonstrated that alienation appraisals have been significantly related to depression symptoms in trauma-exposed student and community samples (DePrince et al., 2011), child abuse and neglect survivors (Srinivas et al., 2015) and medical examiner employees exposed to traumatic experiences at work (Brondolo, Eftekharzadeh, Clifton, Schwartz, & Delahanty, 2017). In trauma-exposed adults, alienation appraisals distinguished between those diagnosed with PTSD and Dissociative Identity Disorder; suggesting that alienation is important in how trauma-related distress presents itself in trauma survivors (DePrince, Huntjens, & Dorahy, 2015). Recent evidence showed that trauma appraisals fully mediated the relationship between traumatic events in childhood and adulthood and later symptoms of posttraumatic stress and depression in a sample of trauma-exposed treatment-seeking adults (Mitchell et al., 2018). Appraisals of alienation were the only significant mediator of this relationship when all other appraisal types (fear, anger, shame, self-blame and betrayal) were considered concurrently (Mitchell et al., 2018).

While the link between alienation and trauma-related distress is a growing evidence-base, research is required to test alternative explanations for alienation-distress links. For example, people who endorse alienation appraisals may also have reduced opportunities for social support, or socially withdraw from others, maintaining their feelings of disconnection from others. Alternatively, those who feel alienated may also report being lonely. Finally, those who feel alienated may do so because of a deficit in naming and expressing emotion (alexithymia), this disconnection from emotion may maintain feelings of disconnection from the self and others. These concepts are theoretically similar to alienation and are theoretically

related to each other; with social support and loneliness viewed as opposite concepts; social support having positive effects for wellbeing and loneliness having negative effects for wellbeing (Andersson, 1998). Decreased social support has been linked to increased loneliness (Pamukçua & Meydan, 2010) and increased alexithymia has been linked to decreased social support (Posse, Haèllstroèm, & Backenroth-Ohsako, 2002). Alienation, alexithymia, loneliness and social support are theoretically similar concepts, which all involve some sense of disconnection. As reviewed below, past research suggests that social support, loneliness, and alexithymia all contribute to trauma-related distress; therefore, an important next step in understanding alienation-distress links is to evaluate the role that these variables play.

Social Support and Trauma-Related Distress

Social support involves "the degree to which a person's basic social needs are gratified through interaction with others" (Thoits, 1982). Social support includes instrumental support, defined as another person providing practical support e.g. cooking for the person when they are ill, and emotional support, defined as another person meeting your emotional needs e.g. loving the person (Moser, Stuck, Silliman, Ganz, & Clough-Gorr, 2012). Research suggested that social support reduces posttraumatic stress severity via reducing negative appraisals following a trauma (Zang et al., 2017). Studies of trauma-exposed females indicated that social support was negatively correlated with post-trauma appraisals; further suggesting a buffering effect of social support for posttraumatic stress severity (Woodward et al., 2015). Among survivors of human trafficking, community integration interventions reduced symptoms of posttraumatic stress by increasing levels of perceived social support; conversely, individuals who reported increased posttraumatic stress symptom severity reported less perceived social support (Okech, Hansen, Howard, Anarfi, &

Burns, 2018). Evidence suggests that poor social support is a risk factor for depression in trauma survivors (Jacobson, Norman, Nguyen, & Brackbill, 2018). Interestingly, some studies showed that social support predicts depression, not posttraumatic stress, in trauma-exposed adults (Adams et al., 2019; Cox, Bakker, & Naifeh, 2017).

The above studies support the theory that trauma-exposed individuals who have limited social support, are at greater risk of PTSD. However, trauma-exposed individuals may feel alienated from others, despite having good social support; if so, alienation should continue to explain variance in distress even when social support is included. This explanation is supported by cognitive models of PTSD which posited that common appraisals following traumatic events include "I cannot rely on other people" (Ehlers & Clark, 2000). Such appraisals may occur in response to beliefs that other people do not understand what the person is going through following a trauma, this can lead to social withdrawal which may further maintain distress (Ehlers & Clark, 2000). Only one study has controlled for the potential confounding effect of social support and found that alienation still predicted symptoms of posttraumatic stress, depression and dissociation in trauma-exposed adults (DePrince et al., 2011). This finding proposed that alienation is not merely a proxy for social support.

Loneliness and Trauma-Related Distress

None of the existing alienation studies have controlled for the potential confounding effect of loneliness, which may help to clarify the mediating role of alienation in trauma-related distress, as those who feel alienated may also be lonely. Loneliness has been broadly defined as "an enduring condition of emotional distress that arises when a person feels estranged from, misunderstood, or rejected by others

and/or lacks appropriate social partners for desired activities" (Rook, 1984). Studies have shown that loneliness is correlated with negative trauma appraisals in adolescent community samples (Hyland et al., 2015) and depression in veterans (Kuwert, Knaevelsrud, & Pietrzak, 2014). Furthermore, loneliness significantly mediated the relationship between child abuse and adult PTSD and depression (Shevlin, McElroy, & Murphy, 2015). Thus, loneliness may play a role in maintaining feelings of alienation and disconnection from others, which may help to clarify the mediating role of alienation in trauma-related distress. One item on the alienation subscale of the Trauma Appraisal Questionnaire is; "even though I have friends, I'm still lonely" (DePrince et al., 2010). Thus, the current study assessed if alienation appraisals were merely a proxy for loneliness.

Alexithymia and Trauma-Related Distress

None of the existing alienation studies have controlled for the effects of alexithymia which may also clarify the mediating role of alienation in trauma-related distress. Alexithymia involves deficits in naming and expressing emotions, distinguishing emotions from bodily sensations and a preference for external rather than internal thinking patterns (Taylor, Bagby, & Parker, 1999). Alexithymia may help to clarify the mediating role of alienation in trauma-related distress, as a difficulty identifying and expressing emotions may also lead to feelings of alienation and disconnection from the self and others. Evidence suggested that alexithymia fully mediated the relationship between past traumatic experiences and anxiety, somatic problems, depression and social deficits; problems identifying emotions was the only significant variable in the mediation analysis (Chen & Chung, 2016).

Rationale

This study builds on previous research to develop an understanding of why alienation appraisals may mediate the relationship between traumatic events and markers of trauma-related distress, when other appraisal subtypes are controlled (Mitchell et al., 2018). The outcomes of interest included posttraumatic stress and depression. It is important to study posttraumatic stress as most people who experience trauma do not develop PTSD (Rosen & Lilienfeld, 2008). Depression, as the most common comorbidity associated with trauma, was also assessed (Brady, Killeen, Brewerton, & Lucerini, 2000). The aim of the current study was firstly to explore the role of alienation appraisals in student and clinical samples, assessing if alienation appraisals significantly mediated the relationship between cumulative trauma and markers of trauma-related distress. Secondly, this study sought to explore whether other factors including alexithymia, social support and loneliness could also mediate the relationship between cumulative trauma and markers of trauma-related distress, clarifying the mediating role of alienation. Alienation has been shown to act as a mediating pathway in a trauma-exposed clinical sample (Mitchell et al., 2018) and a significant predictor of posttraumatic stress and depression in non-clinical samples (DePrince et al., 2011). Thus, these models were tested in both a general student and a clinical sample, as different constructs could potentially be related to alienation appraisals in different samples.

Method

Participants

Student Sample

Undergraduate students (N=100) comprised the student sample and were recruited from the School of Psychology, Queen's University Belfast. Participants

met inclusion criteria if they were over 18 years of age and were excluded if they were experiencing suicidal ideation. Participants had an average age of 20.55 years (S.D. = 4.81) ranging from 18 to 41 years of age. Eighty three percent of participants were female, 17% identified as male. Seventy two percent of the sample were exposed to at least one trauma, sufficient to meet Criterion A in DSM diagnostic criteria for PTSD. Based on Posttraumatic Diagnostic Scale (PDS) responses, 33% of the student sample reported posttraumatic stress symptoms in the moderate range or above. Based on Patient Health Questionnaire (PHQ) responses, 44% of the student sample reported depression symptoms in the moderate range or above.

Clinical Sample

Trauma-exposed treatment-seeking adults (N= 93) were recruited from 3 sites; the Trauma Resource Centre (Belfast Trust), Support and Recovery Service (Southern Trust) and Community Addictions Service (Northern Trust). In the clinical sample, participants were included if they were over 18 years of age and had been exposed to a traumatic event sufficient to meet Criterion A in DSM diagnostic criteria for PTSD. Participants were excluded if they were experiencing active suicidal ideation. Participants had an average age of 49.20 years (S.D. = 20.46) ranging from 21 to 67 years of age. Thirty two percent of the participants were female, 68% identified as male. For cumulative trauma, the average number of traumatic experiences endorsed was 4 (S.D. = 2.33), ranging from 1 to a maximum of 12 diverse trauma types. Based on PDS responses, 87% of the clinical sample reported posttraumatic stress symptoms in the moderate range or above. Based on PHQ-9 responses, 83% of the clinical sample reported depression symptoms in the moderate range or above.

Procedure

In the student sample, participants who met the inclusion criteria completed questionnaire measures online via Qualtrics. Participants read the computerised participant information sheet and provided informed written consent. The questionnaires were administered in the following order; demographic questionnaire, Posttraumatic Diagnostic Scale, Alienation subscale of the Trauma Appraisal Questionnaire, MOS Social Support Survey, UCLA Loneliness Scale, Toronto Alexithymia Scale and Patient Health Questionnaire. Participants identified the worst trauma for them on the PDS and completed the alienation subscale of the TAQ whilst holding this traumatic event in mind. The questionnaires took approximately 35-45 minutes to complete; after which participants were debriefed with further information on Qualtrics. Participation was voluntary and student participants received course credit.

In the clinical sample, staff at each site were provided with participant information sheets and information on inclusion/exclusion criteria. Staff passed on the participant information sheet to any suitable candidates. Service-users who were willing to participate provided informed written consent and completed the questionnaires at a single appointment at their usual therapy location. Questionnaires were administered in a pen-and-paper format in the same order as for the student sample. The questionnaires took approximately 35-45 minutes to complete, participants were then debriefed and invited to ask any questions about the study. Ethical approval was granted by Queen's University Belfast and ORECNI.

Measures

Posttraumatic Diagnostic Scale (PDS) (Foa, 1995)

The PDS can be used as a screen for posttraumatic stress and to rate the severity of symptoms and subsequent impact on functioning (McCarthy, 2008). This 49 item measure rates symptoms experienced in the past month on a 4-point scale from "*not at all*" (0) to "*almost always*" (3), higher scores indicate increased posttraumatic stress symptom severity. Research has demonstrated excellent internal consistency for this measure (Cronbach's α = .92) (Orsillo, 2002). In the current study, internal consistency was acceptable for the student sample (α = .76) and good for the clinical sample (α = .89).

Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001)

The PHQ-9 assesses depression severity over nine items. Participants were asked how often they have been bothered by each symptom in the past 2 weeks. Items are then rated on a 4-point scale from "*not at all*" (0) to "*nearly every day*" (3). Scores range from 0-27; higher scores indicate increased severity of depressive symptoms. Recent research demonstrated that computerised formats of the PHQ-9 do not change the psychometric properties of the measure (Erbe, Eichert, Rietz, & Ebert, 2016) and demonstrate high internal consistency (Cronbach's α = .88) (Erbe et al., 2016). Research has shown excellent reliability and construct validity for this measure (Kroenke et al., 2001). In the current study, internal consistency was good for both the student sample (α = .88) and clinical sample (α = .87).

Trauma Appraisal Questionnaire-Alienation Subscale (TAQ) (DePrince, Zurbriggen, Chu, & Smart, 2010)

The 10 item alienation subscale from the TAQ was used in the current study. Items are rated on a 5-point scale from "*strongly disagree*" (1) to "*strongly agree*" (5), higher scores indicate increased alienation appraisals. Research has demonstrated

excellent concurrent, convergent and discriminant validity as well as good test-retest reliability and excellent internal consistency (Cronbach's α ranging from .84 - .93) (DePrince et al., 2010). Internal consistency in the current study was excellent for both the student sample (α = .93) and clinical sample (α = .93).

Toronto Alexithymia Scale (TAS-20) (Bagby, Taylor, & Parker, 1994)

The TAS-20 measures alexithymia over 20 items. Items are scored on a 5-point Likert scale from "*strongly disagree*" (1) to "*strongly agree*" (5) with higher scores indicating increased alexithymia. Research has indicated good concurrent, discriminant and convergent validity (Bagby et al., 1994). Research has demonstrated good internal reliability (Cronbach's α = 0.86) for the measure (Taylor et al., 2003). Internal consistency in the current study was good for both the student sample (α = .81) and clinical sample (α = .82).

The MOS Social Support Survey – 8 item modified version (MOS-SS) (Moser et al., 2012)

The MOS captures social support via 8 items assessed on a 5-point scale from "*none of the time*" (0) to "*all of the time*" (4). Higher scores indicate increased social support. Research has demonstrated good reliability (Cronbach's α > 0.91) (Sherbourne & Stewart, 1991). Psychometric evaluation showed very good internal consistency, sensitivity, construct validity and discriminant validity (Moser et al., 2012). In the current study, internal consistency was good for both the student sample (α = .87) and clinical sample (α = .86).

UCLA Loneliness Scale (D. Russell, Peplau, & Ferguson, 1978)

The UCLA Loneliness Scale is a 20-item subjective measure of how lonely a person feels. Participants rate each statement on a 4-point scale from "*never*" (1) to

"*often*" (4). Higher scores indicate increased loneliness. Research has demonstrated high reliability including high internal consistency (Cronbach's α = .96), test-retest reliability (r = .73) good convergent and construct validity (Russell, 1996). Internal consistency in the current study was excellent for the student sample (α = .92) and good for the clinical sample (α = .88).

Data analysis

Data was inputted and analysed using IBM SPSS Statistics 24. Simple and parallel mediation models were conducted via SPSS using bootstrapping with the PROCESS add-on (Hayes, 2017). The indirect effect sample distribution was bootstrapped 5000 times. Indirect effects at 95% confidence intervals were deemed significant if they did not cross zero (Hayes, 2017). Mediation analysis was conducted if simple linear regressions demonstrated a statistically significant relationship between the predictor (cumulative trauma) and outcome variables (posttraumatic stress and depression); if this criterion was not met, hierarchical regression analyses were conducted. For both the student and clinical samples, assumptions for regression analyses were all met; residuals approximated a normal distribution, linear relationships were observed and there were no issues with multicollinearity or homoscedasticity.

Results

See Table 1 for descriptive statistics for each sample. See supplemental materials for pair-wise correlations between variables.

Table 1: Descriptive statistics for student and clinical samples

Sample	Measure	N	Mean	SD	Range	Potential range
Student	PDS	81	10.23	10.20	0-31	0-51
	PHQ-9	100	8.73	6.10	0-26	0-27
	TAQ – Alienation subscale	100	19.52	13.18	0-50	10-50
	TAS-20	100	49.65	11.94	0-70	20-100
	MOS-SS	100	23.71	7.13	0-32	0-32
	UCLA	100	38.93	11.46	0-64	20-80
Clinical	PDS	92	33.53	10.63	0-51	0-51
	PHQ-9	92	16.56	6.35	0-27	0-27
	TAQ – Alienation subscale	92	40.52	9.71	10-50	10-50
	TAS-20	91	64.70	13.43	33-92	20-100
	MOS-SS	92	19.85	7.70	2-32	0-32
	UCLA	92	52.10	11.25	20-73	20-80

Cross-Site Comparison

For the clinical sample, data were collected from three sites. Therefore, three one-way analysis of variance were conducted to explore potential group differences

in cumulative trauma, posttraumatic stress and depression. Results showed that there was no statistically significant difference between the clinical sample sites on posttraumatic stress symptom severity scores, $F(2,90) = 1.65$, $p = .20$, $\eta_p^2 = .04$, cumulative trauma, $F(2,88) = 2.51$, $p = .09$, $\eta_p^2 = .05$, or depression symptom scores, $F(2,90) = 1.34$, $p = .27$, $\eta_p^2 = .03$. There was a statistically significant difference between the student sample and the clinical sample for cumulative trauma, $t(189) = 9.54$, $p < .001$, $d = 1.40$, posttraumatic stress symptoms, $t(172) = 14.75$, $p < .001$, $d = 2.24$, and depression symptoms, $t(191) = 8.75$, $p < .001$, $d = 1.26$. The mean scores for cumulative trauma, posttraumatic stress and depression were all significantly higher for the clinical sample in comparison to the student sample.

Mediation and hierarchical regression analyses

Student Sample

Significant total effects were found between cumulative trauma and posttraumatic stress symptoms (see Table 2). When alienation appraisals were entered as a mediator of this relationship a significant indirect effect was evident, with the direct effect no longer significant. This suggested full mediation; the relationship between cumulative trauma and posttraumatic stress symptoms was mediated by alienation appraisals. Cumulative trauma was entered as a predictor of posttraumatic stress, with alienation appraisals, alexithymia, social support and loneliness entered as parallel mediators of this relationship (see Table 2). There was a significant total effect; with the only significant indirect effect observed for alienation appraisals. Results indicated that in a student sample, alienation appraisals mediate the relationship between cumulative trauma and posttraumatic stress symptoms when alexithymia, social support and loneliness are controlled.

Table 2: Summary of regression and mediation models predicting posttraumatic stress in the student sample

Linear regression model - $F(1,79) = 8.18$; $p<.001$; $R^2 = 9\%$										
Predictor	*B*	*SE*	β	*t*	*p*	R^2	ΔR^2			
Cumulative trauma	2.71*	.95	.31*	2.86	.005	.09	.08			
Simple mediation model										
Independent Variable (IV)		Mediating (M)	Variable	Dependent Variable (DV)	Effect of IV on M	Effect of M on DV	Direct Effect	Indirect Effect	95% CI	Total Effect
Cumulative trauma		Alienation		Posttraumatic stress	2.71*	.47**	1.44	1.27*	**.33 – 2.66**	2.71**
Multiple parallel mediation model										
Independent Variable (IV)		Mediating (M)	Variable	Dependent Variable (DV)	Effect of IV on M	Effect of M on DV	Direct Effect	Indirect Effect	95% CI	Total Effect
Cumulative trauma		Alienation		Posttraumatic stress	2.71*	.38**	1.59	1.03*	**.17 – 2.63**	2.71**
		Social support			-1.31*	.21		-.27	-1.11 - .32	
		Loneliness			1.57	.14		.22	-.33 - .89	
		Alexithymia			1.44	.10		.15	-.16 - .68	

*$p < .05$ **$p <.01$ *Note:* CI = Confidence Interval. Bolded confidence intervals do not include a zero, indicating a significant indirect effect.

Significant total effects were observed between cumulative trauma and depression symptoms (see Table 3). When alienation appraisals were entered as a mediator of this relationship no significant indirect effect was evident; suggesting that alienation does not mediate the relationship between cumulative trauma and depression in student sample. Next cumulative trauma was entered as a predictor of depression symptoms, with alienation appraisals, alexithymia, social support and loneliness entered as parallel mediators of this relationship (see Table 3). There was a significant total effect, but no significant indirect effects were observed. Therefore, results indicated that alienation, alexithymia, social support and loneliness did not mediate the relationship between cumulative trauma and depression.

Table 3: Summary of regression and mediation models predicting depression in the student sample

Linear regression model - $F(1,98) = 7.22$; $p = .01$; $R^2 = 7\%$									
Predictor	*B*	*SE*	β	*t*	*p*	R^2	Δ R^2		
Cumulative trauma	1.03*	.34	.26*	2.69	.008	.07	.06		
Simple mediation model									
Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Effect of IV on M			Effect of M on DV	Direct Effect	Indirect Effect	95% CI	Total Effect
Cumulative trauma	Alienation	Depression	1.94*			.18**	.69	.34	-.02 – 1.34	1.03**
Multiple parallel mediation model										
Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Effect of IV on M			Effect of M on DV	Direct Effect	Indirect Effect	95% CI	Total Effect
Cumulative trauma	Alienation	Depression	1.63			.03	.55	.05	-.17 – .48	.99*
	Social support		-.56			-.14		.08	-.06 - .52	
	Loneliness		.95			.21**		.20	-.08 - .85	
	Alexithymia		1.69*			.08		.13	-.03 - .44	

*$p < .05$ ** $p < .01$ *Note:* CI = Confidence Interval. Bolded confidence intervals do not include a zero, indicating a significant indirect effect

Clinical Sample

No model between cumulative trauma and posttraumatic stress was tested via mediation analysis as cumulative trauma did not significantly predict posttraumatic stress (see Table 4). Instead, hierarchical regression analyses were conducted for the clinical data with alienation appraisals as the predictor of posttraumatic stress in step 1; with alexithymia, social support and loneliness added as predictors in step 2 (see Table 4). The first model was statistically significant, with alienation appraisals explaining 50% of the variance in posttraumatic stress symptoms ($\beta = .71$, $p < .001$). When alexithymia, social support and loneliness were added as predictors, the model remained statistically significant ($p < .001$) but only explained an additional 5% of variance in posttraumatic stress. While alienation remained significant, alexithymia ($\beta = .10$, $p = .23$), social support ($\beta = -.10$, $p = .25$) and loneliness ($\beta = .17$, $p = .08$), were not significant predictors of posttraumatic stress symptoms.

Table 4: Summary of regression models predicting posttraumatic stress in the clinical sample

Linear regression model - $F(1,89) = .91$; $p = .34$; $R^2 = 1\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Cumulative trauma	.46	.49	.10	.96	.01	-.001
Step 1: Hierarchical regression model - $F(1,90) = 89.2$; $p<.001$; $R^2 = 50\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Alienation	.79	.08	.71**	0.45	.50	.49
Step 2: Hierarchical regression model - $F(4,87) = 26.5$; $p<.001$; $R^2 = 55\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Alienation	.59	.10	.53**	5.82	.55	.53
Alexithymia	.08	.07	.10	1.21		
Social Support	-.14	.12	-.10	-1.15		
Loneliness	.16	.09	.17	1.75		

*$p < .05$ **$p < .01$

Cumulative trauma did not predict depression in the clinical group, thus mediation analysis was not engaged (see Table 5). Instead, a hierarchical regression analysis was conducted for the clinical data with alienation appraisals as the predictor of depression in step 1, and alexithymia, social support and loneliness added as predictors in step 2 (see Table 5). This model was statistically significant, alienation appraisals explained 57% of the variance in depression symptoms ($\beta = .75$, $p < .001$). When, alexithymia, social support and loneliness were added as predictors, the model remained statistically significant ($p < .001$) but only explained an additional 5% of variance in depression. Alienation, social support ($\beta = .19$, $p = .02$), and loneliness ($\beta = .30$, $p = .001$), were significant predictors of depression, but not alexithymia ($\beta = -.06$, $p = .47$).

Table 5: Summary of regression models predicting depression the clinical sample

Linear regression model - $F(1,89) = 2.90$; $p = .09$; $R^2 = 3\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Cumulative trauma	.49	.29	.18	1.70	.03	.02
Step 1: Hierarchical regression model $F(1,90) = 117.3$; $p<.001$; $R^2 = 57\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Alienation	.50	.05	.75**	10.83	.57	.56
Step 2: Hierarchical regression model $F(4,87) = 35.7$; $p<.001$; $R^2 = 62\%$						
Predictor	*B*	*SE*	β	*t*	R^2	ΔR^2
Alienation	.45	.06	.68**	8.16	.62	.60
Alexithymia	-.03	.04	-.06	-.73		
Social Support	.16	.07	.19*	2.42		
Loneliness	.17	.05	.30**	3.36		

*$p < .05$ **$p < .01$

Discussion

This study was the first in a growing body of work examining alienation appraisals which sought to clarify the mediating role of alienation in trauma-related distress. Across two samples (one trauma-exposed clinical sample and one general student sample), results indicated that alienation contributes to posttraumatic distress even when social support, loneliness, and alexithymia are included in models.

Alienation appraisals fully mediated the relationship between cumulative trauma and posttraumatic stress symptoms in the student sample when alexithymia, social support and loneliness were considered concurrently. This supports previous research highlighting the importance of alienation appraisals in posttraumatic stress (DePrince et al., 2011; Mitchell et al., 2018; Srinivas et al., 2015). Contrary to previous research, alienation appraisals did not significantly mediate the relationship between cumulative trauma and depression symptoms for the student sample (Mitchell et al., 2018). This may be because the student sample endorsed milder symptoms of depression than the clinical sample used in earlier studies (Mitchell et al., 2018). Results from the student sample indicate that alexithymia, social support and loneliness did not appear salient in posttraumatic stress or depression for this group.

In the clinical sample, cumulative trauma did not significantly predict posttraumatic stress or depression symptoms. This finding supported previous research that implicated trauma appraisals as key in psychological distress, rather than the type of trauma or number of traumatic events experienced (Ehlers et al., 2000, Mitchell et al., 2018). Clinical sample results demonstrated that alienation appraisals were the only significant predictor of posttraumatic stress. This is

concordant with previous studies supporting the emerging evidence-base for alienation in posttraumatic stress (Bonfils et al., 2018; Brondolo et al., 2017; Hebenstreit et al., 2015; Mehnert et al., 2012). Alienation remained the only significant predictor and remained a substantial predictor of posttraumatic stress when alexithymia, social support and loneliness were controlled. Thus, the current study provides further support for the unique role of alienation, indicating that the effects of alienation in posttraumatic stress are not better explained by alexithymia, social support or loneliness. These findings support and extend DePrince et al. (2011) work indicating that alienation is not merely a proxy for social support, but also not a proxy for loneliness nor alexithymia.

In the clinical sample, alienation appraisals were a significant predictor of depression symptoms; this further supports existing evidence that alienation appraisals are related to depression in diverse samples of trauma survivors (Babcock-Fenerci & DePrince, 2018; Brondolo et al., 2017). The fact that alienation appraisals were salient in the clinical sample, not the student sample, for depression, suggests that alienation appraisals may be more pertinent for depressive symptoms in trauma-exposed adults who endorse more debilitating levels of trauma-related distress. As well as alienation, results showed that social support and loneliness also predicted depressive symptoms in trauma-exposed treatment-seeking adults; although alienation remained the strongest predictor. This finding supports studies which posit loneliness as a key factor in depression for trauma-exposed adults (Kuwert et al., 2014; Shevlin et al., 2015). Furthermore, the finding that social support predicted depression, not posttraumatic stress symptoms, in the clinical sample, is concordant with findings from studies of 9/11 survivors and veterans (Adams et al., 2019; Cox et al., 2017). The fact that social support predicted depression for trauma-exposed

adults in the current study supports research that shows poor social support as a risk factor for depression in trauma survivors (Jacobson et al., 2018). Evidence that social support may have a buffering effect against distress severity is shown to be nuanced in the current study, with social support seeming to buffer depression but not posttraumatic stress symptoms (Woodward et al., 2015). Alexithymia was not a significant predictor of depression or posttraumatic stress symptoms; this contrasts with previous studies which posited alexithymia as salient in depression for trauma-exposed adolescents (Chen & Chung, 2016).

Alienation appraisals predicted both posttraumatic stress and depression in the clinical sample when social support, loneliness and alexithymia were controlled for. For depressive symptoms, social support and loneliness only explained an additional 5% of variance, with alienation remaining the strongest predictor. This suggests that the internal sense of disconnection from the self and others, defined as alienation, is distinct from the theoretically similar concepts of social support, loneliness and alexithymia.

Limitations

A limitation of the study is the cross-sectional design. Therefore, the temporal order of the variables of interest including alienation, social support, loneliness, alexithymia, posttraumatic stress and depression symptoms, cannot be determined, and causal assertions are limited. Further longitudinal studies which explore changes in these variables over time in trauma-exposed adults are recommended.

An additional criticism is the reduced generalisability of the student sample; which predominantly comprised of young, highly educated females. A benefit of

selecting a student sample was that models could be tested in a sample in which the majority of individuals were trauma-exposed; but endorsed less debilitating symptoms of trauma-related distress than the clinical sample. Future research should aim for a more representative community sample. A final methodological criticism is the use of the PDS to measure cumulative trauma, which has not been specifically validated for this purpose. However, this study extends the findings of work which used the PDS to assess cumulative trauma, showing that the relationship between cumulative trauma and posttraumatic stress was mediated by alienation in the student sample (Mitchell et al., 2018). A further limitation was that stage of therapy was not controlled in the clinical sample. Further research examining changes in alienation appraisals over the course of psychological therapy would help to explain the proposed mechanism of alienation in developing, or maintaining, trauma-related distress.

Clinical Implications

The findings emphasise alienation appraisals as an important predictor, even when controlling for theoretically related constructs in posttraumatic stress, for both student and clinical samples. Ehlers and Clark's (2000) cognitive model of posttraumatic stress, which proposed that negative trauma appraisals made after a trauma maintain distress, is supported in the current study, with the unique role of alienation appraisals particularly emphasised. Early evidence indicates that cognitive restructuring to target appraisals of disconnection from the self and others, as well as graded exposure, may heighten effectiveness of treatment for individuals with posttraumatic stress symptoms who report high levels of alienation (Ehlers et al., 1998a). Therefore, this study recommends the clinical assessment of alienation appraisals in trauma survivors to help inform the psychological formulation and

treatment plan (DePrince, Zurbriggen, Chu, & Smart, 2010). Results showed that social support and loneliness predicted depressive symptoms in the clinical sample of trauma-exposed adults. Thus, clinical assessment should consider social support networks and loneliness in trauma survivors who experience depression. Assisting the trauma-survivor in gaining beneficial social support and engaging in meaningful relationships with others, may help to reduce symptoms of depression in trauma-exposed adults.

Conclusion

In conclusion, this study is the first to explore the relationship between alienation appraisals, alexithymia, social support and loneliness and posttraumatic stress/depression symptoms. Results indicated that alienation is a significant predictor of posttraumatic stress across student and clinical samples. Factors including alexithymia, social support and loneliness do not appear to better explain the mediating role of alienation and posttraumatic stress. However, alienation appraisals, alongside the weaker predictors of social support and loneliness, are important factors to consider in trauma survivors with depression. The findings are useful for enhancing theoretical models of trauma-related distress and are clinically useful for practitioners who work therapeutically with trauma-exposed adults. Alienation makes an independent contribution to the prediction of posttraumatic distress, unique from loneliness, social support and alexithymia.

References

Adams, S. W., Bowler, R. M., Russell, K., Brackbill, R. M., Li, J., & Cone, J. E. (2019). PTSD and comorbid depression: Social support and self-efficacy in

world trade center tower survivors 14–15 years after 9/11. *Psychological Trauma: Theory, Research, Practice, and Policy, 11*(2), 156-164.

Andersson, L. (1998). Loneliness research and interventions: a review of the literature. *Aging and Mental Health, 2*(4), 264-274.

Babcock- Fenerci, R. L., & DePrince, A. P. (2018). Shame and alienation related to child maltreatment: Links to symptoms across generations. *Psychological Trauma: Theory, Research, Practice, and Policy, 10*(4), 419-426.

Bagby, R. M., Taylor, G. J., & Parker, J. D. (1994). The twenty-item toronto alexithymia Scale—II. convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research, 38*(1), 33-40.

Bonfils, K. A., Lysaker, P. H., Yanos, P. T., Siegel, A., Leonhardt, B. L., James, A. V., . . . Davis, L. W. (2018). Self-stigma in PTSD: Prevalence and correlates. *Psychiatry Research, 265*, 7-12.

Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *The Journal of Clinical Psychiatry, 61*(17), 22-32.

Brondolo, E., Eftekharzadeh, P., Clifton, C., Schwartz, J. E., & Delahanty, D. (2017). Work-related trauma, alienation, and posttraumatic and depressive symptoms in medical examiner employees. *Psychological Trauma: Theory, Research, Practice, and Policy, 10*(6), 689-697.

Chen, Z. S., & Chung, M. C. (2016). The relationship between gender, posttraumatic stress disorder from past trauma, alexithymia and psychiatric co-morbidity in

chinese adolescents: A moderated mediational analysis. *Psychiatric Quarterly, 87*(4), 689-701.

Cloitre, M., Chase Stovall-McClough, K., Miranda, R., & Chemtob, C. M. (2004). Therapeutic alliance, negative mood regulation, and treatment outcome in child abuse-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 72*(3), 411.

Cox, D. W., Bakker, A. M., & Naifeh, J. A. (2017). Emotion dysregulation and social support in PTSD and depression: A study of trauma-exposed veterans : Emotion dysregulation, support, PTSD, and depression. *Journal of Traumatic Stress, 30*(5), 545-549.

DePrince, A. P., Chu, A. T., & Pineda, A. S. (2011). Links between specific posttrauma appraisals and three forms of trauma-related distress. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*(4), 430-441.

DePrince, A. P., Huntjens, R. J., & Dorahy, M. J. (2015). Alienation appraisals distinguish adults diagnosed with DID from PTSD. *Psychological Trauma: Theory, Research, Practice, and Policy, 7*(6), 578-582.

DePrince, A. P., Zurbriggen, E. L., Chu, A. T., & Smart, L. (2010). Development of the trauma appraisal questionnaire. *Journal of Aggression, Maltreatment & Trauma, 19*(3), 275-299.

DePrince, A. P., Zurbriggen, E. L., Chu, A. T., & Smart, L. (2010). Development of the trauma appraisal questionnaire. *Journal of Aggression, Maltreatment and Trauma, 19*(3), 275-299. doi:10.1080/10926771003705072

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*(4), 319-345.

Ehlers, A., Clark, D. M., Dunmore, E., Jaycox, L., Meadows, E., & Foa, E. B. (1998a). Predicting response to exposure treatment in PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress: Official Publication of the International Society for Traumatic Stress Studies, 11*(3), 457-471.

Ehlers, A., Clark, D. M., Dunmore, E., Jaycox, L., Meadows, E., & Foa, E. B. (1998b). Predicting response to exposure treatment in PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress, 11*(3), 457-471. doi:10.1023/A:1024448511504

Erbe, D., Eichert, H., Rietz, C., & Ebert, D. (2016). Interformat reliability of the patient health questionnaire: Validation of the computerized version of the PHQ-9. *Internet Interventions, 5*, 1-4.

Foa, E. (1995). *Posttraumatic stress diagnostic scale.* Minneapolis, MN: National computer systems.

Halligan, S. L., Michael, T., Clark, D. M., & Ehlers, A. (2003). Posttraumatic stress disorder following assault: The role of cognitive processing, trauma memory, and appraisals. *Journal of Consulting and Clinical Psychology, 71*(3), 419.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). London, England: Guilford Publications.

Hebenstreit, C. L., Maguen, S., Koo, K. H., & DePrince, A. P. (2015). Latent profiles of PTSD symptoms in women exposed to intimate partner violence. *Journal of Affective Disorders, 180,* 122-128.

Hyland, P., Murphy, J., Shevlin, M., Murphy, S., Egan, A., & Boduszek, D. (2015). Psychometric properties of the Posttraumatic Cognition Inventory within a Northern Ireland adolescent sample. *British Journal of Clinical Psychology, 54*(4), 435-449.

Jacobson, M. H., Norman, C., Nguyen, A., & Brackbill, R. M. (2018). Longitudinal determinants of depression among world trade center health registry enrollees, 14–15 years after the 9/11 attacks. *Journal of Affective Disorders, 229,* 483-490. doi:https://doi.org/10.1016/j.jad.2017.12.105

Keller, S. M., Zoellner, L. A., & Feeny, N. C. (2010). Understanding factors associated with early therapeutic alliance in PTSD treatment: Adherence, childhood sexual abuse history, and social support. *Journal of Consulting and Clinical Psychology, 78*(6), 974.

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613.

Kuwert, P., Knaevelsrud, C., & Pietrzak, R. H. (2014). Loneliness among older veterans in the united states: Results from the National health and Resilience in Veterans Study. *The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry, 22*(6), 564-569.

McCarthy, S. (2008). Post-traumatic stress diagnostic scale (PDS). *Occupational Medicine, 58*(5), 379-379.

Mehnert, A., Nanninga, I., Fauth, M., & Schäfer, I. (2012). Course and predictors of posttraumatic stress among male train drivers after the experience of ‘person under the train' incidents. *Journal of Psychosomatic Research, 73*(3), 191-196.

Mitchell, R., Brennan, K., Curran, D., Hanna, D., & Dyer, K. F. (2017). A meta-analysis of the association between appraisals of trauma and posttraumatic stress in children and adolescents. *Journal of Traumatic Stress, 30*(1), 88-93.

Mitchell, R., Hanna, D., Brennan, K., Curran, D., McDermott, B., Ryan, M., . . . Dyer, K. F. (2018). Alienation appraisals mediate the relationships between childhood trauma and multiple markers of posttraumatic stress. *Journal of Child & Adolescent Trauma, ,* 1-9.

Moser, A., Stuck, A. E., Silliman, R. A., Ganz, P. A., & Clough-Gorr, K. M. (2012). The eight-item modified medical outcomes study social support survey: Psychometric evaluation showed excellent performance. *Journal of Clinical Epidemiology, 65*(10), 1107-1116.

Okech, D., Hansen, N., Howard, W., Anarfi, J. K., & Burns, A. C. (2018). Social support, dysfunctional coping, and community reintegration as predictors of PTSD among human trafficking survivors. *Behavioral Medicine, 44*(3), 209-218.

Orsillo, S. M. (2002). Measures for acute stress disorder and posttraumatic stress disorder. In M. M. Antony, S. M. Orsillo and L. Roemer, *Practitioner’s guide to*

empirically based measures of anxiety (pp. 255-307). New York, USA: Springer.

Pamukçu, B., & Meydan, B. (2010). The role of empathic tendency and perceived social support in predicting loneliness levels of college students. *Procedia-Social and Behavioral Sciences, 5*, 905-909.

Posse, M., Hällström, T., & Backenroth-Ohsako, G. (2002). Alexithymia, social support, psycho-social stress and mental health in a female population. *Nordic Journal of Psychiatry, 56*(5), 329-334.

Rook, K. S. (1984). Promoting social bonding. Strategies for helping the lonely and socially isolated. *American Psychology, 39*(12), 1389-1407.

Rosen, G. M., & Lilienfeld, S. O. (2008). Posttraumatic stress disorder: An empirical evaluation of core assumptions. *Clinical Psychology Review, 28*(5), 837-868.

Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment, 42*(3), 290-294.

Russell, D. W. (1996). UCLA loneliness scale (version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*(1), 20-40.

Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine, 32*(6), 705-714.

Shevlin, M., McElroy, E., & Murphy, J. (2015). Loneliness mediates the relationship between childhood trauma and adult psychopathology: Evidence from the adult

psychiatric morbidity survey. *Social Psychiatry and Psychiatric Epidemiology, 50*(4), 591-601.

Srinivas, T., DePrince, A. P., & Chu, A. T. (2015). Links between posttrauma appraisals and trauma-related distress in adolescent females from the child welfare system. *Child Abuse & Neglect, 47*, 14-23.

Taylor, G. J., Bagby, R. M., & Parker, J. D. (1999). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge, England: Cambridge University Press.

Taylor, G. J., Bagby, R. M., & Parker, J. D. (2003). The 20-item toronto alexithymia scale: IV. reliability and factorial validity in different languages and cultures. *Journal of Psychosomatic Research, 55*(3), 277-283.

Thoits, P. A. (1982). Conceptual, methodological and theoretical problems in studying social support as a buffer against life stress. *Journal of Health and Social Behavior, 23*, 145-159.

Woodward, M. J., Eddinger, J., Henschel, A. V., Dodson, T. S., Tran, H. N., & Beck, J. G. (2015). Social support, posttraumatic cognitions, and PTSD: The influence of family, friends, and a close other in an interpersonal and non-interpersonal trauma group. *Journal of Anxiety Disorders, 35*, 60-67.

Zang, Y., Gallagher, T., McLean, C. P., Tannahill, H. S., Yarvis, J. S., Foa, E. B., & STRONG STAR Consortium. (2017). The impact of social support, unit cohesion, and trait resilience on PTSD in treatment-seeking military personnel

with PTSD: The role of posttraumatic cognitions. *Journal of Psychiatric Research, 86*, 18-25.

Technical Appendix

	1	2	3	4	5	6	7
1. PDS cumulative trauma	-	.31**	.26**	.23**	.20*	-.15	.13
2. PDS symptom severity		-	.55**	.59**	.40**	-.18	.40**
3. PHQ depression			-	.42**	.45**	-.46**	.60**
4. TAQ alienation				-	.44**	-.33**	.53**
5. TAS-20 alexithymia					-	-.30**	.58**
6. MOS-SS social support						-	-.61**
7. UCLA loneliness							-

*$p < .05$. **$p < .01$

Table 1: First order correlations (*r*) between cumulative trauma, posttraumatic STRESS symptoms (PDS), depression symptoms (PHQ-9), alienation appraisals (TAQ), alexithymia (TAS-20), social support (MOS-SS) and loneliness (UCLA) for the student sample

	1	2	3	4	5	6	7
1. PDS cumulative trauma	-	.10	.18	.06	-.13	.12	.04
2. PDS symptom severity		-	.72**	.70**	.42**	-.41**	.55**
3. PHQ depression			-	.75**	.32**	-.22*	.56**
4. TAQ alienation				-	.44**	-.39**	.57**
5. TAS-20 alexithymia					-	-.21*	.39**
6. MOS-SS social support						-	-.53**
7. UCLA loneliness							-

*$p < .05$. **$p < .01$

Table 2: First order correlations (*r*) between cumulative trauma, posttraumatic stress symptoms (PDS), depression symptoms (PHQ-9), alienation appraisals (TAQ), alexithymia (TAS-20), social support (MOS-SS) and loneliness (UCLA) for the clinical sample

Correlational Findings

Correlations are presented in Table 1 for the student sample and Table 2 for the clinical sample. For the student sample, cumulative trauma was weakly positively correlated with posttraumatic stress, depression, alienation and alexithymia. Cumulative trauma was not significantly correlated with social support or loneliness. Posttraumatic stress was moderately positively correlated with depression and alienation and was weakly positively correlated with alexithymia and loneliness. Depression showed a moderate positive correlation with loneliness and weak positive correlations with alienation and alexithymia. Depression was weakly negatively correlated with social support. Alienation was weakly positively correlated with alexithymia and social support and was moderately positively correlated with loneliness. Alexithymia showed a weak, negative correlation with social support and a moderate, negative correlation with loneliness. Social support showed a moderate, negative correlation with loneliness.

For the clinical sample, cumulative trauma was not significantly correlated with posttraumatic stress, depression, alienation, alexithymia, social support or loneliness. Posttraumatic stress symptoms showed strong, positive correlations with depression and alienation appraisals, a moderate positive correlation with loneliness, a weak positive correlation with alexithymia and a weak negative relationship with social support. Depression showed a strong positive correlation with alienation, a

moderate positive correlation with loneliness, a weak positive correlation with alexithymia and a weak negative correlation with social support. Alienation showed a moderate positive correlation with loneliness, a weak positive correlation with alexithymia and a weak negative correlation with social support. Alexithymia showed a weak negative correlation with social support and a weak positive correlation with loneliness. Social support showed a moderate negative correlation with loneliness.

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8. Supplementary Materials. Authors may wish to place some material in the separate designation of “Supplementary file not for review,” which will be made available online for optional access by interested readers. This material will not be seen by reviewers and will not be taken into consideration in their evaluation of the scientific merits of the work, and will not be included in the published article. Material appropriate for such a designation includes information that is not essential to the reader’s comprehension of the study design or findings, but which might be of interest to some scholars; examples might include descriptions of a series of non-significant posthoc analyses that were not central to the main hypotheses of the study, detailed

information about the content of coding system categories, and CONSORT flow diagrams for randomized controlled trials (see below). Note well that the manuscript must stand on its own without this material; consequently, critical information reviewers and readers need to evaluate or replicate the study, such as the provenance and psychometric properties of the measures administered, is not appropriate for placement into Supplementary Materials.

9. Statement of Ethical Standards: In the conduct of their research, author(s) are required to adhere to the "Ethical Principles of Psychologists and Code of Conduct" of the American Psychological Association (visit http://www.apa.org/science/leadership/research/ethical-conduct-humans.aspx for human research or http://www.apa.org/science/leadership/care/guidelines.aspx for animal research) or equivalent guidelines in the study's country of origin. If the author(s) were unable to comply when conducting the research being presented, an explanation is required. All work submitted to the Journal of Traumatic Stress must conform to applicable governmental regulations and discipline-appropriate ethical standards. Responsibility for meeting these requirements rests with all authors. Human and animal research studies typically require prior approval by an institutional research or ethics committee that has been established to protect the welfare of human or animal participants. Data collection for the purposes of providing clinical services or conducting an internal program evaluation generally does not require approval by an institutional research committee. However, analysis and presentation of such data outside the program setting may qualify as research (which is defined as an effort to produce generalizable knowledge) and thus may require approval by an institutional committee. Those who submit manuscripts to the Journal of Traumatic Stress based on data from these sources are encouraged to consult with a representative of the

applicable institutional committee to determine whether approval is needed. Presentations that report on a particular person (e.g., a clinical case) also usually require written permission from that person to allow public disclosure for educational purposes, and involve alteration or withholding of information that might directly or indirectly reveal identity and breach confidentiality. To document how these guidelines have been followed, authors are asked to identify in the online submission process the name of the authorized institution, committee, body, entity, or agency that reviewed and approved the research or that deemed it to be exempt from ethical or Internal Review Board review. Although blinded at the time of submission, the name of the IRB or ethics committee that approved the research, and the manner in which consent was obtained, also should appear in the Procedure subsection of the Method in the body of the report.

10. Randomized Clinical Trials: Reports of randomized clinical trials should include a flow diagram and a completed CONSORT checklist (available at http://www.consort-statement.org) indicating how the manuscript follows CONSORT Guidelines for the reporting of randomized clinical trials. The flow diagram should be included as a figure in the manuscript whereas the checklist should be designated as a "Supplementary file not for review" during the online submission process. Please visit http://consort-statement.org for information about the consort standards and to download necessary forms.

11. Systematic Reviews: Reports of systematic reviews follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (http://www.prismastatement.org/documents/PRISMA%202009%20checklist.pdf) and should be accompanied by a flow diagram (http://www.prisma-

statement.org/PRISMAStatement/FlowDiagram.aspx) mapping out the number of records identified, included, and excluded, and the reasons for exclusions.

12. Writing for an International Readership: As an international journal, the Journal of Traumatic Stress avoids the use of operational code names or nicknames to describe military actions, wars, or conflicts, given that these may not be equally familiar or meaningful to readers from other nations. Helpful guides for clear and neutral language for reporting on military-based research can be found at the following webpages: the ISTSS newsletter StressPoints (http://www.istss.org/educationresearch/traumatic-stresspoints/2015-march-(1)/media-matters-what%E2%80%99s-in-a-nameusing-military-code.aspx), the International Press Institute (http://ethicaljournalismnetwork.org/assets/docs/197/150/4d96ac5-55a3396.pdf) and the Associated Press Stylebook and Briefing on Media Law (http://www.apstylebook.com/?do=help&q=48/). In addition, authors are encouraged to give consideration to whether particular research findings might be culturally-specific rather than universally established; e.g., prevalence rates derived from samples consisting of all-US participants should be identified as such.

13. Originality and Uniqueness of Submissions. Submission is a representation that neither the manuscript nor substantive content within in it has been published previously nor is currently under consideration for publication elsewhere. A statement transferring copyright from the authors (or their employers, if they hold the copyright) to the International Society for Traumatic Stress Studies will be required after the manuscript has been accepted for publication. Authors will be prompted to complete the appropriate Copyright Transfer Agreement through their Author Services account. Such a written transfer of copyright is necessary under U.S. Copyright Law in order

for the publisher to carry through the dissemination of research results and reviews as widely and effectively as possible.

14. Pre-Submission English-Language Editing: Authors for whom English is a second language may choose to have their manuscript professionally edited before submission to improve the English. Japanese authors can find a list of local English improvement services at http://www.wiley.co.jp/journals/editcontribute.html. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication.

15. Page Charges: The journal makes no page charges. The only exception to this, as noted above, is if authors wish tables or figures to be printed in color.

16. Author Services: Online production tracking is available for your article through Wiley-Blackwell's Author Services. Author Services enables authors to track their article—once it has been accepted— through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated emails at key stages of production. Authors will receive an email with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete email address is provided when submitting the manuscript. Visit http://authorservices.wiley.com/ for more details on online production tracking and for a wealth of resources including FAQs and tips on article preparation, submission, and more. Corresponding authors: In lieu of a complimentary copy free access to the final PDF offprint of your article will be available via Author Services only. Please therefore sign up for Author Services if you would like to access your article PDF offprint and enjoy the many other benefits the service offers. Should you wish to purchase reprints of your article, please click on the

link and follow the instructions provided: https://caesar.sheridan.com/reprints/redir.php?pub=10089&acro=JTS

17. OnlineOpen : The Journal of Traumatic Stress accepts articles for Open Access publication. Please visit http://olabout.wiley.com/WileyCDA/Section/id-828081.html for further information about OnlineOpen.

18. NIH Public Access Mandate: For those interested in the Wiley-Blackwell policy on the NIH Public Access Mandate, please visit our policy statement at www.wiley.com/go/nihmandate

Journal of Traumatic Stress Style Sheet

Manuscript style at the *Journal of Traumatic Stress* follows the conventions of the 6th edition of the *Publication Manual of the American Psychological Association*. This fact sheet is provided to call attention to key style issues that are sometimes overlooked. We ask that all authors consult the APA manual for complete information and to review their manuscript prior to uploading for submission to see that it accords with APA style. Doing so will expedite the review process at all stages.

General Style Issues

 Use past tense for everything that has already happened, including the collection and analyses of the data being reported. Findings of previous research should be reported in the past tense (e.g., "In a previous study, Knox (2006) found …") whereas theories should be reported in the present tense (e.g., "Knox's (2006) bicameral theory of brain development posits that …")

 Do not use boldface in the manuscript except in heading levels 1 – 4 and a few symbols specifically noted in the APA manual.

 Posttraumatic is one word. Spell out posttraumatic stress disorder (PTSD) initially before using its acronym.

 Too many subheadings can make a manuscript choppy. Many *JTS* manuscripts will need only level 1 and 2 headings; for some manuscripts three levels are appropriate.

 Gender and *sex* are theoretically and conceptually distinct variables. *Gender* refers to psychological, social, cultural experiences associated with the biological aspects of being female or male. *Sex* refers to any physiological or biological aspect of being male or female.

 Other than as notes in tables, footnotes should be avoided. When their use is absolutely necessary, footnotes should be formatted in APA style and placed on a separate page after the reference list and before any tables.

 Submit manuscripts in DOC or RTF format.

JTS STYLE SHEET 2
NOV 2010

Title Page

 Follow APA format in constructing the title page, including the Running Head, title, authors and their affiliations, and the Author Note.

 It is ***only*** on this title page that any identifying information should appear regarding the authors, their affiliations, or the institutions associated with the work. This information should be disguised or deleted from the rest of the document.

Abstract

 The Main Document of the manuscript begins with an abstract no longer than 250 words, placed on a separate page.

 The abstract should concisely state the purpose, method, findings, and implications of the study but APA style does ***not*** include using those terms as subheadings within the abstract.

 JTS house style requires the reporting of an effect size for each finding discussed in the abstract; if there are many findings, present the range.

Method Section

 The Method (not Methods) section should include sufficient detail so that another investigator would be able to replicate the study conducted. Each manuscript must stand on its own and therefore it is not sufficient to simply point the reader to another publication in which the methods employed have been described already.

 Participants: Please include in this subsection of the Method section information on sample characteristics, subsample comparisons, and any analyses that describe the sample but do not test hypotheses that are the main aims of your manuscript.

 Procedure: Please describe the procedure in sufficient detail so that it could be comprehended and replicated by another investigator.

 Identify by name the IRB or ethics committee (edited out for blind review in the submitted manuscript) that approved the research, and the manner in which consent was obtained.

 Measures: In addition to providing citations, psychometric, and validation data for each measure administered, please provide coefficient alpha from your data set for each measure for which this is appropriate.

 When describing measures, provide response options in lower case and italicize response options (e.g., 1 = *not at all*, 2 = *a little*, 3 = *somewhat*, 4 = *a great deal*) but do not italicize the names of scales.

 Data Analysis: Include a separate subsection with this header in the Method section in which you describe the analyses performed, the software program(s) used, and make an explicit statement about missing data in your data set. If there are no missing data, so state; otherwise describe the extent of missing data and how they were handled in the data analyses.

Results Section: Reporting Statistical Information in the Text

 Reporting of Descriptive Information. Examples of the correct format for some commonly reported descriptive statistics follow:

- *N* = 1,365 (total sample size), but *n* = 781 (for a subsample).

- (*M* = 8.22, *SD* = 1.35), spell out mean in narrative text. (*JTS* does not use the format M+SD.)

- *Mdn* = 14

- Use 4.0%, not “four percent” unless it is the beginning of a sentence.

- Do not use a zero before decimal fractions that cannot be greater than an absolute value of 1 (e.g., correlations, coefficient alphas, standardized betas [ ], *p* values, fit indices), i.e., *r* = .47, not *r* = 0.47.

- Use a space before and after a minus sign and an equals sign, e.g., gain = posttest – pretest.

 Reporting of Statistical Test Information. Examples of the correct format for some commonly-reported statistics follow:

- $\chi^2(1, N = 196) = 11.43$, $p = .007$; χ^2 is not italicized; *N* and *p* are italicized.

- *t*(38) = 0.69, *ns*; *t* and *p* are italicized, one space before and after all equal signs.

- *F*(1, 58) = 38.99, $p < .001$; if the *p* value is less than .001 report as $p < .001$.

- *OR* = 1.46, 95% CI [1.21, 1.71]; *OR* is italicized, but CI is not.

 Number of decimal places:

- Generally, data should be reported to two digits more than the precision of the raw data. Use more decimal places only when necessary to convey additional precision, e.g., when reporting a correlation or covariance matrix in structural equation modeling.

- Correlations (with the exception noted above), proportions, and inferential statistics should be reported to two decimal places.

- Percentages should be reported to one decimal place.

 Reporting of *p* values

- When reporting *p* values in the text, exact *p* values are reported to three decimal points if they are not less than .001; e.g., $p = .027$.

- If the value is less than .001 use $p < .001$.

- In tables, use conventional ranges, such as $p < .05$, $p < .01$, $p < .001$ with asterisks, or if an experimentwise error correction procedure is employed, (e.g., Bonferroni correction; Benjamini & Hochberg, 1995), use the derived ranges.

- Interpretation of *p* values falling outside the significance criteria is strongly discouraged, but if authors wish to interpret such information the exact value must be given as well as a strong rationale for why it deserves not to be treated as non-significant. Such rationales usually appeal to issues of effect size.

Tables

- Please consult the APA style manual in detail for general information about the construction of tables and specific examples of types of tables. In addition to the APA Manual itself, the textbook by Fidell and Tabachnick (1996) also provides helpful examples of correctly-formatted tables, as does the guide by Nicol and Pexman (2010), with the exception of the latter including *p* value columns in many examples. Examples of properly formatted tables also will be found on the last page of this style sheet.

- Each table should begin on a new page, be double-spaced throughout, and the margins should remain at 1 inch all around.

- Tables are numbered and labeled sequentially beginning with 1. Table titles are italicized and in "title case," meaning all significant words are capitalized. There is no period after the table title.

- Tables should be referred to by number in the text where the information within them is being discussed (e.g., "As the correlations displayed in Table 1 indicate…"). Do not use "Insert Table X here" to indicate table placement in the text.

- Please use Word's Table function to construct tables, not tabs and spacing.

- Only horizontal lines are used in APA format for tables. Do not use grids or vertical lines anywhere in the table.

- Color can be included in the online version of a manuscript at no charge; however use of color in the print version of the journal will incur additional charges (currently $600 per figure or table). If you wish to include color in only the online version, please ensure that the table will be legible in greyscale when it is published in the print version; for example, lines of different colors may be discriminable from one another when viewed in color but may not appear to be different from one another in greyscale.

- Within columns, right-align whole numbers (like *n*s), and decimal-align others to one or two digits after the decimal point.

- Each datum should appear in its own cell (e.g., do not include *SD*s in parentheses following *M*s but instead create a separate column for *SD*s).

- Avoid including a column of exact *p* values unless these values are crucial to understanding the results of the table (they rarely are). Instead, use asterisks to denote significance levels of $p < .05$, $p < .01$, and $p < .001$.

- When reporting the results of regression analyses, include the *SE B* along with the *B*. Standardized betas (β) do not have SEs and should not be italicized.

- When reporting a table of intercorrelations, fill the rows first and then the columns such that any empty cells are in the lower left-hand quadrant of the table; use dashes in any redundant cells indicating the correlation of a variable with itself.

- Each of the three types of table notes starts on a new line. First are any general notes, second are any specific notes, and last are probability notes.

Figures

- Please consult the APA style manual for general information about the construction of figures and specific examples of types of figures.

- Vector-based figures (e.g., figures created in Adobe Illustrator) should be submitted in EPS format.

- Please ensure that figures are sufficiently large to be legible. In TIF format, the following minimum resolutions are required:
  - 1200 dpi (dots per inch) for black and white line art (simple bar graphs, charts, etc.)
  - 300 dpi for halftones (black and white photographs)
  - 600 dpi for combination halftones (photographs that also contain line art such as labeling or thin lines)
- All figures (graphs, photographs, drawings, and charts) should be numbered (with Arabic numerals) and referred to by number in the text.

- Each figure should begin on a separate page.

- Figures do not have titles. A *caption* for each figure, which includes the italicized figure number (*Figure X*.), the title, and as much detail as necessary to ensure that the figure can be

understood on its own should appear at the bottom of the figure itself (not on a separate page). The caption should be in Times New Roman font. Use sentence case for titles and labels.

- Use Arial font throughout except for the caption, which should remain as Times New Roman.

- A *legend*, which explains the symbols used in a figure, should be included in the figure and not in the caption.

- Color can be included in the online version of a manuscript at no charge; however use of color in the print version of the journal will incur additional charges (currently $600 per figure or table). If you wish to include color in only the online version, please ensure that the figure will be legible in greyscale when it is published in the print version; for example, lines of different colors may be discriminable from one another when viewed in color but may not appear to be different from one another in greyscale.

- At the time the manuscript is submitted, figures should be in Word, TIF, or EPS format. Upon acceptance of the article, the JTS Production team will require a version of each figure that is in an editable format.

References

- Format the references using APA 6th edition style

- Begin the reference list on a new page following the text

- Double-space all citations but do not include an extra space after each

- Use hanging indent format

- Italicize the journal name or book title

- List alphabetically by last name of first author.

- Do not include journal issue numbers unless each volume begins with page 1.

- If a reference has a Digital Object Identifier (doi), it must be included as the last element of the reference.

 Examples

- ***Journal Article:***

Kraemer, H. C. (2009). Events per person-time (incidence rate): A misleading statistic? *Statistics in Medicine, 28*, 1028–1039. doi: 10.1002/sim.3525

- ***Book:***

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

- ***Book Chapter:***

Meehl, P. E. (2006). The power of quantitative thinking. In N. G. Waller, L. J. Yonce, W. M. Grove, D. Faust, & M. F. Lenzenweger (Eds.), *Essays on the practice of scientific psychology* (pp. 433–444). Mahwah, NJ: Erlbaum.

Supplementary Materials

 Authors may wish to place some non-essential material in the separate designation of "Supplementary file not for review," which will be made available online for interested readers who choose to access it.

 This material will not be seen by reviewers and will not be taken into consideration in their evaluation of the scientific merits of the work, and will not be included in the published article.

 Material appropriate for such a designation includes information that is not essential to the reader's comprehension of the study design or findings, but which might be of interest to some scholars; examples might include descriptions of a series of non-significant post-hoc analyses that were not central to the main hypotheses of the study, detailed information about the content of coding system categories, and CONSORT flow diagrams for randomized controlled trials.

 Note well that the manuscript must stand on its own without this material; consequently, critical information reviewers and readers need to evaluate or replicate the study, such as

 the provenance and psychometric properties of the measures administered, is not appropriate for placement into Supplementary Materials.

Evidence of ethics and governance approval from the appropriate bodies

School of Psychology
Queen's University Belfast
David Keir Building
18-30 Malone Road
BELFAST BT9 5BN
Tel: 028 9097 5445
psychology@qub.ac.uk
www.psych.qub.ac.uk

1 September 2017

Ms Rachel McIlveen
C/o School of Psychology

Dear Rachel

Full title of Study: Exploring the relationship between trauma, alienation appraisals and psychological wellbeing
PREC reference number: No 03-2017-18

Thank you for your response to our request for further information regarding the above mentioned research application.
I can confirm that ethical approval has been granted for your project by the School of Psychology Research Ethics Committee, on behalf of Queen's University Belfast.
Please note that the Participant Information sheet should include an appended statement confirming ethical approval.
It is the responsibility of the Chief Investigator to ensure that the research has been recorded on the University's Human Subjects Research Database otherwise it will not be covered by the University's indemnity insurance. This database can be found in the 'My Research' section of Queen's On-line.

Yours sincerely

Dr Eugene O'Hare (Chair)
Psychology Research Ethics Committee

Cc Dr D Hanna

Office for Research Ethics Committees
Northern Ireland
(ORECNI)
Customer Care & Performance Directorate
Lissue Industrial Estate West
5 Rathdown Walk
Moira Road
Lisburn
BT28 2RF
Tel: 028 95361407
www.orecni.hscni.net

05 March 2018 (reissued 12.3.18)
Dr Donncha Hanna
School of Psychology
David Keir Building
18-30 Malone Road
Belfast
BT9 5BN

Dear Dr Hanna **Study title:** **Exploring the relationship between trauma, alienation appraisals and psychological well-being.**

REC reference: **18/NI/0006**
IRAS project ID: **237099**

Thank you for your correspondence of 26 February 2018, responding to the Committee's request for further information on the above research.
The further information has been considered on behalf of the Committee by Dr Alastair Walker Vice-Chair, (Chair of the meeting held on 30 January 2018) and Mrs Margaret Brady, Lead Reviewer.
We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact hra.studyregistration@nhs.net outlining the reasons for your request.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study:

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned
Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise). Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.
Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.
For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.
Sponsors are not required to notify the Committee of management permissions from host organisations.
Registration of Clinical Trials
All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).
There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.
To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.
If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.
It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).
Ethical review of research sites
NHS sites
The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" above).

Approved documents
The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Covering letter on headed paper [Cover Letter]	1	22 February 2018
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity Certificate]	1	15 July 2017
IRAS Application Form [IRAS_Form_28022018]		28 February 2018
IRAS Checklist XML [Checklist_14122017]		14 December 2017
IRAS Checklist XML [Checklist_15122017]		15 December 2017
IRAS Checklist XML [Checklist_26022018]		26 February 2018
IRAS Checklist XML [Checklist_28022018]		28 February 2018
Letter from sponsor [Sponsor Letter]	1	06 December 2017
Non-validated questionnaire [DEMOGRAPHIC QUESTIONNAIRE]	2	16 February 2018
Other [QUB PEER REVIEW LETTER]	1	18 July 2017
Other [CONTACT SLIP]	1	08 December 2017
Other [DONNCHA HANNA GCP CERTIFICATE]	1	03 November 2017
Other [DAVID CURRAN GCP CERTIFICATE]	1	13 October 2017
Other [KEVIN DYER GCP CERTIFICATE]	1	29 March 2015
Other [RACHEL MCILVEEN GCP CERTIFICATE]	1	13 October 2017
Other [BHSCT VULNERABLE ADULT POLICY]	2	17 April 2013
Other [SHSCT VULNERABLE ADULT POLICY]		23 May 2013
Other [DISTRESS PROTOCOL]	2	16 February 2018
Other [RISK PROTOCOL]	2	16 February 2018
Other [CONFIDENTIALITY PROTOCOL]	2	16 February 2018
Other [RISK ASSESSMENT FORM]	1	16 February 2018
Other [NHSCT VULNERABLE ADULT POLICY]		04 May 2017
Participant consent form [CONSENT FORM]	1	08 December 2017
Participant information sheet (PIS) [PARTICIPANT INFORMATION SHEET]	2	16 February 2018
Research protocol or project proposal [RESEARCH PROTOCOL]	1	08 December 2017
Summary CV for Chief Investigator (CI) [DR DONNCHA HANNA CV]	1	08 December 2017
Summary CV for student [RACHEL MCILVEEN CV]	1	08 December 2017

Summary CV for supervisor (student research) [DR DAVID CURRAN CV]	1	14 December 2017
Summary CV for supervisor (student research) [DR KEVIN DYER CV]	1	14 December 2017

Validated questionnaire [PDS QUESTIONNAIRE]
Validated questionnaire [TRAUMA APPRAISAL QUESTIONNAIRE ALIENATION ITEMS]
Validated questionnaire [PATIENT HEALTH QUESTIONNAIRE PHQ-9]
Validated questionnaire [MOS-SS 8 ITEM VERSION]
Validated questionnaire [UCLA LONELINESS SCALE]
Validated questionnaire [TORONTO ALEXITHYMIA SCALE]

Statement of compliance
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review
Reporting requirements
The attached document *"*After Ethical Review – Guidance for Sponsors and Investigators*"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback
The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/.

HRA Training
We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/. **18/NI/0006 Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.
Yours sincerely
PP

Dr Alastair Walker (Chair of HSC REC A Committee Meeting held on 30 January 2018)
Vice Chair
Email: RECA@hscni.net *Enclosures:* After Ethical Review – Guidance for Sponsors and Investigators

Copy to: Dr Paula Tighe, Queens University Belfast
Ms Frances Johnston, Northern Health & Social Care Trust

Belfast Health and Social Care Trust

caring supporting improving together

18/05/2018

Dr Donncha Hanna
School of Psychology
David Keir Building
18-30 Malone Road
Belfast
BT9 5BN

Dear Dr Hanna

Study Title: Exploring the relationship between trauma, alienation appraisals and psychological well-being.

HSC Trust Ref: (17136DH-SP)

REC Ref: 18/NI/0006
IRAS Ref: 237099

I am pleased to advise that Belfast HSC Trust has given final Research Governance Permission for the above project to commence. Permission is granted for the duration of the project to 28/02/2019

The following documents have been approved for use in the project:

Document	Version	Date
Protocol	V1.0	08/12/2017
Demographic Questionnaire	V2.0	16/02/2018
BHSCT Vulnerable Adult Policy	V2.0	17/04/2013
Distress Protocol	V2.0	16/02/2018
Risk Protocol	V2.0	16/02/2018
Confidentiality Protocol	V2.0	16/02/2018
Participant Consent Form	V1.0	08/12/2017
PIS	V2.0	16/02/2018
PDS Questionnaire		
Trauma Appraisal Questionnaire		
Patient health Questionnaire PHQ-9		
MOS-SS 8 item version		
UCLA Loneliness Scale Toronto Alexthyma Scale		

The following personnel have been approved to work on the study at this Trust:

Name	Indemnity Provided by
Mary Corry	BHSCT
Rachel McIlveen	BSO

Permission is granted subject to the attached conditions and I would ask you to please ensure that all members of the research team are familiar with these. Failure to abide by these conditions will invalidate permission and may result in the cessation of the research.

I wish you every success with your project.

Yours sincerely,

Professor Ian Young
R&D Director

Cc: Rachel McIlveen
Paula Tighe
Karen Hodgen

Conditions of Permission

Research Governance permission is issued provided the researcher(s) involved adhere to and abide by the conditions below.

- The researcher(s) must adhere strictly to the research protocol.
- There must be no changes to the research protocol or approved study documentation without the prior consent of the Trust, the Research Ethics Committee and, where applicable, the MHRA.
- There must be no changes in research staff without prior consent of the Trust.
- The Research Office should be informed if the Chief Investigator or Principal Investigator(CI/PI) is unable to continue to fulfil his/her duties as CI/PI for any reason such as long term absence, change in employment etc.
- There must be no increase in the resources required without prior consent of the Trust.
- Researcher(s) must report all untoward incidents and serious adverse events to the Trust.
- Any concerns in relation to the research protocol must be reported to the Trust.
- Researcher(s) must adhere to good research practice principles in line with the ICH Good Clinical Practice (GCP) guidelines.
- Researcher(s) must adhere to the Trust's Research & Development Standard Operating Procedures (available from the Research Office on request)
- On request, researcher(s) must make their research project available to Trust appointed monitors.
- The lead researcher must make an annual report to the Research Office for the duration of the project.
- The lead researcher should inform the Research Office on completion or termination of the project. Completion reports must be sent to the Research Office, Research Ethics Committee and, if applicable, MHRA.

Northern Health and Social Care Trust
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Governance Department

Final Research Governance Permission

29 March 2018

Dr Donncha Hanna
Lecturer/Research Co-ordinator
Queens University Belfast
School of Psychology
David Keir Building
18-30 Malone Road
Belfast
BT10 0FL

Dear Dr Hanna

Study Title:	Trauma, alienation appraisals and psychological well-being
NHSCT Ref:	NT18-0600-02
REC Ref Number:	18/NI/0006
IRAS project ID:	237099

I am pleased to advise that the Northern Health & Social Care Trust has given Final Research Governance Permission for the above project to commence. Permission is granted for the duration of the project to 28 February 2019 .

The following documents have been approved for use in the project:

Document	Version	Dated
IRAS form 237099/1157319/37/250	signed	14/12/17
Protocol	V 1	08/12/17
Appendix 2 - CF	V 1	08/12/17
Appendix 3 – Contact slip	V 1	08/12/17
Appendix 5 – Post traumatic stress diagnostic scale		
Appendix 6 – Trauma Appraisal questionnaire – Alienation items only		
Appendix 7 – PHQ-9 (Patient Health Questionnaire)		
Appendix 8 – The MOS social support survey – 8 item modified version		

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Document	Version	Dated
Appendix 9 – UCLA Loneliness scale		
Appendix 10 – TAS-20 (Toronto Alexithymia Scale)		
Appendix 1 – PIS	V 2	16/02/18
Appendix 4 – Demographic interview	V 2	16/02/18
Appendix 11 – Distress protocol	V 2	16/02/18
Appendix 12 – Risk protocol	V 2	16/02/18
Appendix 13 – Confidentiality protocol	V 2	16/02/18
Appendix 15 – Risk assessment	V 1	16/02/18
Appendix 16 – BHSCT Adult protection policy and procedures	V 2	17/04/13
Appendix 17 – SHSCT Safeguarding vulnerable adults operational procedure guidance		23/05/13
Appendix 18 – NHSCT Adult safeguarding operational procedures		04/05/17
QUB peer review letter		18/07/17
REC provisional opinion		06/02/18
Response to REC		22/02/18
REC provisional opinion		06/02/18 reissued 26/02/18
REC favourable opinion		05/03/18
REC favourable opinion		05/03/18 reissued 12/03/18
CV Rachel McIlveen		
CV Donncha Hanna		
CV David Curran		
CV Kevin Dyer		
GCP Rachel McIlveen		13/10/17
GCP Donncha Hanna		03/11/17
GCP David Curran		13/10/17
GCP Kevin Dyer		29/03/15
Insurance certificate (Valid 01/08/17-31/07/18)		15/07/17
Sponsor letter		06/12/17
Study Wide Governance Report		29 /03/18

The following personnel have been approved to work on the study at this Trust:

Name	Indemnity Provided by
Dr David Curran	NHSCT
Ms Rachel McIlveen	QUB

Northern Health and Social Care Trust

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Permission is granted subject to the attached conditions and I would ask you to please ensure that all members of the research team are familiar with these. Failure to abide by these conditions will invalidate permission and may result in the cessation of the research.

I wish you every success with your project.
Yours sincerely,

Dr Desmond Rooney
Head of NHSCT R&D

CC Dr David Curran, NHSCT
Ms Rachel McIlveen, QUB
Dr Paula Tighe, QUB

Research & Development Office, Bush Road, Bush Road, Antrim. BT41 2QB
Telephone Number: 02894 424751

Northern Health and Social Care Trust

www.northerntrust.hscni.net

Conditions of Permission

Research Governance permission is issued provided the researcher(s) involved adhere to and abide by the conditions below.

- The researcher(s) must adhere strictly to the research protocol.
- There must be no changes to the research protocol or approved study documentation without the prior consent of the Trust, the Research Ethics Committee and, where applicable, the MHRA.
- Researchers must inform the NHSCT R&D Office if an extension to honorary contract is required for the duration of the study.
- There must be no changes in research staff without prior consent of the Trust.
- The Research Office should be informed if the Chief Investigator or Principal Investigator(CI/PI) is unable to continue to fulfil his/her duties as CI/PI for any reason such as long term absence, change in employment etc.
- There must be no increase in the resources required without prior consent of the Trust.
- Researcher(s) must report all untoward incidents and serious adverse events to the Trust.
- Any concerns in relation to the research protocol must be reported to the Trust.
- Researcher(s) must adhere to good research practice principles in line with the ICH Good Clinical Practice (GCP) guidelines.
- Researcher(s) must adhere to the Trust's Research & Development Standard Operating Procedures (available from the Research Office on request)
- On request, researcher(s) must make their research project available to Trust appointed monitors.
- The lead researcher must make an annual report to the Research Office for the duration of the project.
- The lead researcher should inform the Research Office on completion or termination of the project. Completion reports must be sent to the Research Office, Research Ethics Committee and, if applicable, MHRA.

Southern Health and Social Care Trust

Research & Development Office

Dr Donncha Hanna
Lecturer/Research Co-ordinator
Queen's University Belfast
School of Dentistry
David Kerr Building
18-30 Malone Road
Belfast
BT9 5BN

13th April 2018 **Our Ref:** ST1718/30/IK/JAH

Dear Dr Donncha Hanna

Study Title: **Exploring the relationship between trauma, alienation appraisals and psychological well-being.**
HSC Trust Ref: **ST1718/30** (Please quote this number in all future correspondence)
REC Ref: **18/NI/0006**
IRAS Ref: **237009**

I am pleased to advise that the Southern HSC Trust has given Research Governance Permission for the above project to commence. Permission is granted for the duration of the project to 28th February 2019.

The following documents have been approved for use in the project:

Document	Version	Date
DEMOGRAPHIC QUESTIONNAIRE	2	16 February 2018
CONTACT SLIP	1	08 December 2017
SHSCT VULNERABLE ADULT POLICY		23 May 2013
DISTRESS PROTOCOL	2	16 February 2018
RISK PROTOCOL	2	16 February 2018
CONFIDENTIALITY PROTOCOL	2	16 February 2018
RISK ASSESSMENT FORM	1	16 February 2018
CONSENT FORM	1	08 December 2017
PARTICIPANT INFORMATION SHEET	2	16 February 2018
PDS QUESTIONNAIRE		
TRAUMA APPRAISAL QUESTIONNAIRE ALIENATION ITEMS		
PATIENT HEALTH QUESTIONNAIRE PHQ-9		
MOS-SS 8 ITEM VERSION		
UCLA LONELINESS SCALE		
TORONTO ALEXITHYMIA SCALE		

The following personnel have been approved to work on the study at this Trust:

Name	Indemnity Provided by
Dr Ryan Mitchell	NHS/Queen's University Belfast
Ms Rachel McIlveen	NHS/Queen's University Belfast

Permission is granted subject to the attached conditions which I would ask you to please ensure that all members of the research team make themselves familiar. Failure to abide by these conditions will invalidate permission and may result in the cessation of the research.

I wish you every success with your project.

Yours sincerely,

Miss I Knox
Research Manager

eCopy to:

Dr Paula Tighe, Research Governance Manager, Queens University Belfast - p.tighe@qub.ac.uk

Dr Ryan Mitchell, Clinical Psychologist, Bluestone Unit CAH – ryan.mitchell@southerntrust.hscni.net

Ms Rachel McIlveen, Phd student, Queen's University Belfast – rmcilveen07@qub.ac.uk

Research & Development Office Ramone Building Craigavon Area Hospital 68 Lurgan Road Portadown BT63 5QQ
Tel: 028 3861 4274 / 4275 Email: Irene.knox@southerntrust.hscni.net

Conditions of Permission

Research Governance permission is issued provided the researcher(s) involved adhere to and abide by the conditions below.

- The researcher(s) must adhere strictly to the research protocol.
- There must be no changes to the research protocol or approved study documentation without the prior consent of the Trust, the Research Ethics Committee and, where applicable, the MHRA.
- There must be no changes in research staff without prior consent of the Trust.
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Research & Development Office Ramore Building Craigavon Area Hospital 68 Lurgan Road Portadown BT63 5QQ
Tel: 028 3861 4274 / 4275 Email: Irene.knox@southerntrust.hscni.net

QUEEN'S UNIVERSITY BELFAST

Research and Enterprise

Queen's University Belfast
63 University Road
Belfast
BT7 1NF
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researchgovernance@qub.ac.uk
http://www.qub.ac.uk

Ref: B17/43

06 December 2017

Study: **Exploring the relationship between trauma, alienation appraisals and psychological well-being.**

Chief Investigator: **Dr Donncha Hanna**

QUB Investigators: **Ms Rachel McIlveen**
Dr David Curran
Dr Kevin Dyer

I confirm that, subject to the appropriate ethical approval, Queen's University Belfast will act as Sponsor for the above named research study, in accordance with the Research Governance Framework for Health and Social Care. However, the University will not give approval for any research to proceed until a favourable ethical opinion has been obtained. All necessary management permissions must be in place before commencing work at a research site.

The study must be recorded on the University's Insurance Database prior to commencing. The database will be checked to ensure it has been completed, but remains the responsibility of the Chief Investigator (named above) to populate and maintain.

All human tissue and organs held by staff for research purposes must be recorded on the University's Human Tissue Database and there must be adherence to the current approved University policy to ensure compliance with Human Tissue Act 2004.

Yours sincerely

Paula Tighe
Research Governance Manager

Cc File
Chief Investigator

The Queen's Anniversary Prizes

Athena SWAN Silver Award

Reflective Appendix

Throughout my clinical training, the research experience I have gained has been invaluable. I have further developed pre-existing personal qualities and strengths which have assisted me in completing this research portfolio. I am an organised person, with strong time-management skills. I have learned how important it is to plan out time in my diary to complete different research tasks in advance. These organisation and time-management skills have enabled me to juggle the competing demands of clinical training; academic, placement and research demands alike. Remaining organised has helped me to keep on top of research supervision meetings, ethics applications, recruitment meetings, data collection, quantitative analysis, write-up and submitting papers to journals for consideration. My strong time-management skills ensured that I submitted my ethics application well in advance, to account for any potential delays in commencing recruitment across three health trusts; ensuring I had enough time to collect data and submit my research portfolio on time.

I am a friendly and approachable person, this has assisted me in building strong professional relationships with staff teams who provided great support in assisting with recruiting participants for my large-scale research study. I have also learned the importance of good communication with my research team, including academic supervisors as well as principle investigators and local collaborators in health trusts. Maintaining good communication is vitally important in ensuring sufficient recruitment is both feasible and achieved within the additional time constraints of clinical training. I have learned to adapt my communication depending on the context; adapting slightly different communicative styles in academic research

meetings to clinical meetings with health trust staff who assisted with recruitment. By prioritising good relationships with the wider research team; I was able to increase “buy-in” from health trust staff teams by considering their needs and how to make the recruitment process as seamless as possible, to avoid creating more work for busy clinicians. Throughout data collection, I used my clinical skills to put research participants at ease, as well as fully adhere to ethical guidelines. This ensured that potential participants were fully aware that they were under no pressure to take part in the study and that deciding not to take part would have no effect on the care they receive from the health trust at any time.

One personal weakness that I have reflected on during this research; has been my impatience in waiting to receive ethical approval across three health trusts; despite knowing that these ethical issues take careful planning and consideration. This impatience was fuelled by my worries that I would not have sufficient time to collect data. However, whilst obtaining ethical approval was a long process, I was still able to recruit the sample I needed once I received ethical approval. In future research projects, I will remember that ethical approval is a lengthy process and will manage my time to ensure I can concentrate on other areas of my research, including choosing an appropriate journal for submission and self-directed learning, whilst waiting for ethical approval.

A methodological strength of the study was choosing broad inclusion criteria for the clinical sample. This ensured that any adult exposed to a trauma sufficient to meet criterion A in DSM criteria for Posttraumatic Stress Disorder (PTSD) who was not actively suicidal, could be included in the study. This ensured data collection was feasible and that there was heterogeneity in the trauma types and levels of trauma-related distress experienced across the student and clinical samples. Potential

weaknesses as discussed in the limitations section, are that stage of therapy was not controlled for, and that the data is cross-sectional, limiting causal assertions. However, whilst future longitudinal research examining alienation appraisals in trauma-exposed adults which tracks changes over time would be invaluable, it was not feasible within the time constraints of completing this research during clinical training. This study has important implications for future research that I will consider in my continuing professional development as a Clinical Psychologist. The findings from both my large-scale study and systematic review highlight the unique importance of alienation appraisals in trauma survivors; this will in no doubt influence my clinical practice in working therapeutically with trauma-exposed individuals.

I have gained many new research competencies whilst completing this research. A new skill I have developed is learning to write research papers for academic journals. I have had excellent research supervision throughout my training; these constructive and helpful supervisory relationships have enabled me to develop and improve my writing style; tailoring my writing for specific journals. I am excited to further develop my writing skills in my future research career as a scientist-practitioner. I have also gained further research competencies in quantitative data analysis; particularly in the use of meta-analysis and mediation analysis. Further research skills include my increased awareness of ethical considerations in research across student and clinical samples and the advantages of sampling across these participant groups to provide more comprehensive answers to complex research questions.